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1909

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March, 1909

The
Child Workers
of the
Nation

PROCEEDINGS OF THE FIFTH
ANNUAL MEETING OF THE
NATIONAL CHILD LABOR COMMITTEE

PHILADELPHIA
The American Academy of Political and Social Science

**SUPPLEMENT TO
THE ANNALS OF THE AMERICAN ACADEMY OF POLITICAL
AND SOCIAL SCIENCE
MARCH, 1909**

THE CHILD WORKERS OF THE NATION

**PROCEEDINGS OF THE FIFTH ANNUAL MEETING
OF THE
NATIONAL CHILD LABOR COMMITTEE**

**PHILADELPHIA
THE AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE
1909**

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CONSERVING CHILDHOOD

BY ANDREW S. DRAPER, LL. B., LL. D.

Commissioner of Education of the State of New York, Albany, N. Y.

It is yet to be proved that a wide-open democracy like ours can do some of the things which a well-ordered political society needs to have done, as well as more centralized forms of government do them with apparent ease. Indeed, it is yet to appear that we can make good the fundamental principle of our political creed and assure *equality* of right and opportunity to every one. Of course, there are compensations for the fact, but it is a fact.

The door of opportunity opens wider here than in any other nation in the world. The passion of the United States is that every one shall have his chance. We provide primary, secondary and higher instruction practically free of cost to all. The teaching is efficient and the equipment is ample, often sumptuous. The spirit that supports it all is delightful. The school budget is the one tax of which no good American has the hardihood to complain. The road to and through and between the schools is a broad highway. It has no breaks and no very heavy grades. No sect, no party, no social set, no commercial interest, is allowed to obstruct it. So much is settled and everywhere accepted. It is more than settled and accepted. Wealth, society, business, religion and political sagacity find their security and their pleasure in continually enlarging and strengthening the educational ideal.

The road to accomplishment and to fame is as open and as free as that to the schools. Education is not only the universal American passion, but hope, cheer, courage are the words which the most beautiful and brilliant flag in the world whispers in the ears of all, native born or adopted, who live where it casts its shadow. A national temperament which is being warmed by the intermingling of the blood, the experiences and the ideals of all the peoples of the world; which has been ennobled by the constantly enlarging opportunities and continually increasing influence of women; which has been incited by innumerable individual successes, and which has been made very confident, if not very vain, by the always

unfolding magnificence of the governmental plan, is stirred to its very depths by the opportunities and the inspirations of the American Republic. The millions who are mature enough to feel it, and who have not been borne down by conditions which are well nigh insuperable, are struggling, in season and out of season, to make the most of it. The spectacle is brilliant enough to stir the wonder, if not the jealousy, of the world. Nothing short of the *Gloria in excelsis* can express our heartfelt appreciation of it all.

Would that there were no word of qualification nor ground for apprehension. But there is, and we are old enough and strong enough to look each other in the face and say it. Our general characterization expresses great and proud truths, and perhaps the larger part of the whole truth, but still it is only a part of the whole truth. The undisclosed part is that we count a mere opening for some as the equal chance for all. It is not so; one must be helped to a place where he may enter the door of opportunity, before he has any share in the equal chance for all. Leaving further applications of the principle to be made by others, it is my mission to this Conference to say that all American children must be given the implements with which to make their way in our busy civilization before it can be said that our political system is sufficiently efficient or that equality of chance is held out to every one.

Fifty years ago we were discussing just such a question as this, and the great Lincoln, right here in the city of Chicago and the state of Illinois, was piercing the fallacy that political freedom covered the right to do wrong. Senator Douglas, a very great man, was saying that the territories should have free constitutions and be left to vote slavery up or down, according to their inclinations; but the greatest of all Illinoisans and the greatest of all Americans answered, "No, that is but temporizing with an inherent wrong." It would be logical, he said, if slavery were ever right, but for one man to claim the right to eat his bread in the sweat of another man's brow, save as the result of free contract or pursuant to bad laws already duly enacted, was essentially immoral. Slavery might be tolerated for a time where it was established by law, because even that might be better than a fratricidal war which might sever the union of the states and present an insuperable obstacle to a further democratic advance; but freedom was to be voted up and slavery must be voted down by the common action of a free nation, when

it came to territory that was already free. The people saw the point, and used the man to carry the great principle to a consummation which saved the nation.

Slavery to ignorance is no less slavery than the slavery of a serf to an overlord. It is the inherent right of the American child to be or to become free from both. The possession of at least the elementary powers to read and write, by which he may gain knowledge and make the most of himself, is an essential part of his freedom. Such possession by all the people of a free country is the country's most valuable property. It is the property of all. Every one under a free constitution has just as much of a property interest in the literacy and the efficiency of every other as he has in the performance of any other legal or moral compact. No one can waive it for himself, through his youth or his ignorance, because of the mutuality of all the obligations of the universal compact. He cannot lose it by misfortune for which he is not responsible. If he is incapable of asserting the right for himself, the legal organization set to enforce the terms of the compact is bound to enforce it for him. The right of every one to read is not to be voted up or down, as a city, a county, a district or a parent may please to vote. This is essentially so in a democracy, and more particularly in a democracy with ideals like ours. The illiteracy of an American citizen whose childhood has been passed in America is unlawful and essentially immoral. Education, an essential of freedom, is always to be voted up and everywhere enforced in a republic.

These are not idle words. In America, where we offer more education to every citizen than does any other country in the world, there are more people who cannot read or write in any language than there are in any other constitutional country in the world. The attendance upon the primary schools is less complete and regular than in any other well-ordered nation upon the globe. In Chicago or New York there is a much larger percentage of people ten years old or more who can neither read nor write than there is in London, or Paris, or Berlin, or Zurich, or Copenhagen, or even Tokio.

Illiteracy is almost a negligible quantity in the German Empire, in France, Switzerland, the Scandinavian countries and even in Japan. As I was preparing this address I had the pleasure of a call from Dr. Koht, professor of modern history in the University of

Christiania. I asked him how many children there were in the Scandinavian countries, ten years old, who could neither read nor write. He said *not any*. He seemed surprised at the question. In the state of New York there are fifty-five in a thousand, and in Illinois forty-two in a thousand.

It is easily explained. The immigration is an inadequate explanation. Immigrants from the highly or uniformly educated nations go far to offset those from the peoples where education is less diffused. Immigrants are often more jealous than native Americans of their opportunities in the schools. They more commonly settle in the cities, where the schools are convenient and where all the people are accustomed to some measure of compulsion, than in the country. There is a larger percentage of illiterate children of native born than of foreign born parents in the state of New York. This statement is also true of Illinois. There is often a larger percentage of illiteracy in the country than in the cities. The explanation is not a very complacent one. It is in the fact that we know little of national economics; that we have not acquired the habit of taking care, and particularly in the fact that we have a popular conception of freedom which does not include the vital necessity of proper restraint and compulsion as to all. It is because of our unfortunate disposition to let people do as they please, upon condition that they let us do as we please. It is because we are so indifferent in our self-confidence, so willful, resourceful and optimistic.

Probably no one will deny that we have as complete a system of school attendance and child-labor laws in New York as in any state. They are not complete, but are measurably so for America. They are harmonious. The Labor and Education Departments are in accord. It looks as though the labor laws are very well enforced. Behind them there are strong, influential and determined bodies of citizens—the labor organizations, who have direct interest in the execution of the laws which prescribe the ages, the hours and all of the conditions where many people work together. These organizations not only enforce the laws, but they create sentiment. Even the execution of the laws of itself makes sentiment. Direct interest gives energy and strength to the arm of the law. Even those people who have no direct interest and who do not think much about it, get into the habit of thinking that what happens all of the time ought to happen.

School attendance laws are without organized help. Sentiment is quite indifferent. Indeed, there is a not uncommon feeling that it is below the dignity of the state to be hunting up little children to make them go to school, and quite apart from the proper feelings of the well-to-do to be punishing poor or unworthy parents for not keeping their children in school. This feeling is much more common in the country and in smaller towns than in the larger cities. But it exists everywhere. The officers of the law look upon the enforcement of school laws as beyond their realm. The police very nearly revolt against it. The local magistrates refuse to impose punishments. It is not strange; it is not wholly unworthy; they have sympathy, and they deal with so much squalor and with what seems to them so much more serious matters, that they are glad to take a promise and let the thing go. Sometimes they are thinking about votes at the next election, but oftener they are simply expressing the very common feeling of indifference of the country. The execution of the school laws is largely left to school officers, and, without the interested aid of the officers charged with the enforcement of the penal laws, the school officers are pretty nearly helpless. The mercury which measures American public sentiment upon enforcing school attendance is well down to the freezing point. Legislators dislike to add to the efficiency of attendance laws, and governors are even more reluctant to suggest discipline upon subordinate officers, who persistently refuse to make them effective. In other words, we have the disadvantages as well as the advantages of democracy.

If our country were simply one great business corporation, with "no body to be kicked and no soul to be damned," which was expecting to continue indefinitely and was always looking for profits, its officers would do all they could to enlarge the efficiency of boys and girls, because they would know that such efficiency was the thing above all others to reinforce life and assure the repetition of dividends. If we had a king whom we sustained in the delusion or pretence that he was a sort of father to us all, he would be likely to follow courses to enlarge our productivity, without letting any of us get out of what he conceived to be our proper places, because productivity would be translated into revenues. If our country were an empire, bounded by rival empires, and likely at any time to have to fight for territory and for life, things would be arranged to make each of us contribute to the military power of the empire. Intel-

lectual acumen, versatility, craftsmanship, the working habit, are larger factors than mere physical strength in the constituent elements of military power. If our country were a constitutional monarchy or even a republic where thought and political power were not very free; where there was an inherited autocracy and superimposed aristocracy, with a false "culture" which inbreeding was degrading into insipidity, every one of us would be used for what there was in us to hold up the props which support the roofs.

Our scheme of government is not like that of any other people. Our thinking and our outlook are peculiar to ourselves. We have shown that we can govern ourselves. We have shown that in infinite and overwhelming ways our plan is stable and secure enough, and our ways open the door of opportunity to the individual and the mass. The great heart of our nation is not yearning for aristocracy or empire or military power. It does not even want a kind or a measure of learning that is not in equilibrium and in sympathy with work. We want to bear a great nation's honorable and instructive part in the progress of the world. Beyond what good neighborliness and good morals impose, we do not wish to meddle with the affairs of other peoples. We do not wish them to do more concerning our affairs. As they do not seem so disposed and as no one suspects that we would allow it if they did, there is no occasion to bluster about it. But in the interests of neighborliness and good morals we have some lessons to learn, as well as some to impart.

We do not believe in the Government using the people, but we do believe in the people using the Government. We would use this Government for a double purpose—to keep us all in good legal and moral relations with all the world, and to assure peace, security, equality of right and the utmost of opportunity to every soul in the republic. All that is inbred in us, but there is one thing that is not, and that is regard for common possessions and responsibility for the brother who is in bonds. It would, of course, be absurd to say that this is true of all of us, because those among us who have been the most successful in business have commonly become our noblest benefactors, and because vital occasions always develop a moral sense which may be counted upon. But it is not too much to say that, with all of our opportunities and all of our encouragement, there is no national policy and no national conscience in America which uses the authority of the nation to universalize and conserve the efficiency of men and women.

We are a wasteful people. We have never studied economy. We have never acquired the habit of taking care. Other peoples would live sumptuously out of the difference between what they would get and what we do get out of our properties. We know nothing of the potentiality of our resources. When we fall short we start out to find new fields rather than to find ways for increasing the productivity of old fields. Unhappily, loose habits react upon ourselves. They actually make us profligate of our boys and girls.

Just now we are enjoying a little breeze of prudence about natural resources. For once the statesmen and the orators and the magazines and the newspapers are *en rapport* with the professors of economics and the political economists generally, to make us more saving of wood and water and coal and oil and iron than we are. The agricultural colleges are telling us how to get more out of our lands, and admonishing us that if we don't treat them better and use more fertilizers they will stop yielding their fruits in season. We do more to conserve wild animals than tame ones. All the states are protecting moose and deer and fish and wild chickens. In New York we have taken up the cause of chipmunks and woodchucks, and would have done it for wolverines and gophers and badgers and prairie dogs if there were any. Such a wave of prudence is as exhilarating and encouraging as it is unprecedented and timely in America. When we get started in conserving we are likely to do a great deal of it. Surely we will not stop at the border line of human interest, and when the issue comes to be a moral one we will not forever hesitate at the point where it is necessary to compel people to do some things as well as not to do other things.

Resources alone can never provide the ballast necessary to the equipoise of a nation. The vital factors in a nation's existence, to say nothing of a nation's beneficence and moral progress, are human. In the economics of nation building the overwhelming concern will have to be about boys and girls. In all history, men and women have overcome scarcity of resources and difficulties of situation. There are compensations in the economics of God. Strong and sane peoples have used slender resources and hard situations to work out overwhelming results. Unsubstantial and frivolous peoples have been overcome by the very plentitude of materials and the very advantage of situation. Great peoples have made themselves the greater by overcoming the hardness of situation. But no

people has ever grown great unless tradition or the force of circumstances or intellectual prescience was larger than the material factors in the compounding of its future. Poverty or a sufficiency, rather than inordinate wealth, helps nations as well as individual men and women.

We are wealthy in natural resources. In woods and waters and mines we are a "millionaire" nation. We have no conception of the potential possibilities of our boundless areas of tillable lands, for we have never had to make the most of them. We hold a low estimate of the possibilities of domestic animals. We do not realize the wealth that is yet in our mountains. We have even less appreciation of the associated worth of our hills and valleys and lowlands; of our lakes and streams and cascades; of the rains and dews that nourish us, and of the climate that stimulates us to make the most of material things. We have endless coasts washed by the two great oceans; deep, sheltered harbors in all latitudes, and the busy highways of the nations are and must ever be across the lands and waters that are under our flag.

But we have more than wealth of natural resources. History, tradition, severe fighting for freedom, the hard struggles of pioneers, much thinking and strong moral purpose have been the warp, as much as the wealth of a new continent has been the woof, of our civilization. There was something in the blood of our fathers; there is something in the blood which all the nations are continually sending to us; something in the compounding of the English nation, and something more in the compounding of the American nation; something in the factors which have produced, and something in the results which have grown out of the steady advance of religious and political freedom through a thousand years, to make us a keen, quick, alert and ambitious people. This in turn is disclosing our enormous natural wealth. It is disclosing our cunning, our avarice, our pertinacity, also. Is our political system going to be equal to the new strains which the new situations put upon it? We have no doubt of it. But there is enough about it all to challenge the wisdom of the generation that is here, and to quicken the red blood of the one that is coming on.

"Conserving natural resources," if not an American phrase, has an American meaning. It describes a movement to stop a few great characters, through a few overpowering corporations to which

we have delegated much of the power which belongs to all of us in common, from getting our common possessions into their own hands, or from despoiling great inheritances which have come to us in common. This does not necessarily mean anything against these great characters; most of us admire most of them. Often they are as great in their patriotism and in their rational generosity as in their business sagacity. It means nothing, essentially, against the corporations. Their development of resource has been a necessary force in the development of a new country. It means merely that the time has come for a little more assertion of common rights in common property. It is more against a further absorption that is coming to amount to sequestration of our goods, than against a national profligacy that has not yet put us in sore straits. The outcome of so much of "conservation" seems hopeful. Certainly it is grateful. But it is to be feared that greater prudence in the use of whatever goods each of us can lawfully gather will not seize upon us until we are in a tighter pinch than now.

With all of our national wastefulness we are more profligate of childhood than of any other factor in the nation's life. We are not only lax about requiring attendance upon the schools, but we have pretty nearly given over the control and direction of children who live at home and exist in the regular order. The common authority presumes too much upon the proper exercise of the authority of parents. It does not take into account the number of parents who are so vicious or weak that they have no right to have children, or the number of unfortunate children who would be better off if they were orphans. And, largely through the influence of a sentimentalism that is fully half bad, the children in three-quarters of the better homes and in the schools are given their own sweet way to an extent which weakens their characters for life.

We cannot exculpate the schools. They are as wasteful of child life as are the homes. From the bottom to the top of the American educational system we take little account of the time of the child. We are anxious to do everything under the sun, and to put into the young head of a child all that he is ever expected to know. The sentimental and well-meaning people load everything upon us. So we have eight or nine elementary grades for work which would be done in six if we were working mainly for productivity and power. We have shaped our secondary schools so that

they confuse the thinking of youth and break the equilibrium between education and vocations and people and industries. Our university facilities divide up the time of students between their departments with as much enthusiasm as a young surgeon goes at an autopsy. The departments get what they must have to sustain themselves and the subjects get the consequences of it. They pay for it in time or in attenuated courses and unremunerated work. The training is for the professions, and if the universities are let alone the students will not be ready for life before they are thirty years of age. That keeps young people unmarried and unsettled too long, and it works havoc in life in obvious ways.

In the graded elementary schools of the state of New York less than half of the children remain to the end of the course. They do not start early enough. They do not attend regularly enough. The course is too full of mere pedagogical method, exploitation and illustration, if not of kinds and classes of work. The terms are too short and the vacations too long. It all overworks and worries teachers, so that to live at all, they have to have short terms. More than half the children drop out by the time they are fourteen or fifteen, the limits of the compulsory attendance age, because the work of the schools is behind the age of the pupils and we do not teach them the things which lead them and their parents to think it will be worth their while to remain.

The compulsory attendance age should begin at six, or at seven at the most, and the course should be freed from everything not of fundamental importance to the early training of a child. I am not for going back to the simple work of a half-century ago. I am quite aware of the fact that the child is to live in a complex civilization. But I am sure that there is no need to teach him, before he is fourteen years of age, everything that it may ever be well for him to know. I am quite sure that it is desirable to induce society to expend its devotion to culture upon the school grounds and the schoolhouse, and leave the children to bathe in the sunlight of these things while the teachers are allowed to train them in the things they must know in order to be self-supporting and a support to the state. I am no less sure that the multiplicity of books and appliances and the endless exploitation and illustration in the teaching may well be severely reduced. It is not often a question of what or how it may be well to teach a child if the element of time is not to be

considered; generally it is a question of what we can teach him before he is fourteen years old that will be of most worth to him in after years.

There is another side of this subject that is staring right at us. That is the unpreparedness of children for any vocation which is not literary or professional; the undue public and school influence upon ambitious temperaments to choose mental rather than manual work; and the utter indifference of the educational system in the past to the intellectual and industrial equilibrium of the country.

Now, I am not saying or implying that a poor boy shall not enter a profession or aspire to any position in the land. That is for him to settle. The roads are to be open to every child, no matter under what sort of a roof he is born. There is not only one road, but many, and he is not to be persuaded by always present injunctions and implications to enter one particular road when there is grave doubt about it being the best one for him. All the roads are to be made good, and his all-around qualities are to be trained until he sees the road which seems the best to himself.

The finest successes come not so much from learning as from doing, and an educational system which does not recognize that fact and act up to it needs radical reforming. The conspicuous successes in life do not attend those who are the star students upon commencement morning more than those who find something that they can do and who do it with all their might. I have been surprised at the number of college men who gain success, although for one reason or another they left college without a degree. The captains are those who can command. We have been trying to impose upon labor a leadership which was not accustomed to labor and did not know any too much about the details of labor. We have trained for culture and for expertness and for examinations. It is time to train for craftsmanship, and let *workmen* of character and efficiency forge to the front. They will do it even though the signals are set against them, or else there will be little accomplishment and small progress. Why not arrange the scheme so as to make it easier for them to do it?

If we are to do anything substantial in the way of conserving American childhood, we will have to control it. We will have to insure its attendance upon instruction, and we will have to train it to efficiency of hand even more than smartness of head. Character

will come out of labor before competency will come out of mere culture of mind. How long shall we proceed upon the fundamental mistake that there is any culture worth the name which does not grow out of work, or any real manliness or womanliness which has not proceeded from things that have been done? I am not saying that necessarily the things done must have been done by the hand, but I do think that the culture is likely to be deeper and the character the stronger if the things done have been done in the sweat of the brow.

We need a new order of public schools, a system on parallel lines with the literary high schools, a system which will train in hand work and which will not assume to train captains, but workmen; a system which will permit no short cuts to the position of master workmen, but will fit for that of journeyman in shorter time. We need a system which will stand fair between every interest of all the people; a system which will do definite things and open the door of opportunity to a multitude against whom it is now closed, a system which will dignify hand labor and go a long way to restore the balance which we have been losing, to the diminution of our efficiency and therefore, of our happiness at home, as well as to the injury of our trade relations with the other nations of the world.

Of course, the people whose feelings are expressed in this notable assemblage need no other argument than the exclusively moral one to quicken their interest in the conservation of American childhood. It has been the political assumption of the Republic that none other is necessary. But it must begin to be evident that even the economic interests of an empire, even the apprehensions and aspirations of the man on horseback, may go further than the moral sense of a democracy must necessarily go to make an elementary training of the children universal. Something beyond the open chance, and something beyond our encouragement and good wishes, will have to operate if we are to conserve the youth of the United States and steadily advance the efficiency, and therefore the character, the happiness and the prosperity of the country. We will have to have an always up-to-date enrollment of every child in the land, and some responsible central authority will have to see that every one gets that fundamental training in useful things, which, under the theories of all respectable governments is his in his own right, and which the manifest interests of every country inexorably demand that he shall have,

As already observed, when we really commence a good thing we do much of it. President Roosevelt is following his notable movement for conserving natural resources with another, which is to have the attention of a distinguished conference in Washington next week, in the interests of neglected and defective children. That is admirable. It will be one of the many good things which will make the administration of Roosevelt prominent in the history of the country. But we must go still further. We must take up the claims of the overwhelming number of children who are reasonably normal and not very destitute. We must conserve their time, their mental and manual efficiency and their morals. We must have them all recorded and see that every one has the benefit of his birthright. We must exercise more control. We must see that every one is trained to read and write and prepared for some vocation by which he can make a living. Then there will not be so many degenerates and waifs in the next generation or in the one after that.

There seems to be little room for issues of fact or differences of opinion among us. In college vocabulary, we offer to all the people more wide-open electives in our educational system from top to bottom, and require less, than does any other country. They offer less and require more than we do. They certainly get more in a circumscribed but exact elementary training universally diffused than we do. We shall withdraw no offerings; we shall doubtless make more. But that is not enough. In the moral interests of boys and girls, in the interests of industrial prosperity, in the interests of the Republic and in the interests of democracy and freedom in the world we are bound not only to see that every child can read and write, but to follow him until he has the chance to enter upon a vocation which will make him respectable and of worth to the world.

In the advance of our educational system we have not maintained the balance. The unequal chance, the fallacious outlook, works injustice to multitudes of people and to many industries. Our education should put a premium upon work of hand. It is the only way to enlarge the open chance without confusing and misleading boys and girls.

We should all stand for laws establishing better and safer conditions for labor, and particularly for laws which try to keep greed from robbing children of their American birthright. But when we exclude children from work, we must include them in the schools.

Too much work is bad, but too much idleness is infinitely worse. The schools are bound to be of a kind and character which will enable them to count organized labor among their strongest supports.

We are in the midst of a great task. We are working out the basis and the details of the greatest industrial democracy in human history. Let us lose nothing of our good humor. Let us abate nothing of our confidence and our courage. Let us prove that our indifference is more apparent than real. Let us tone down our conceits and our boasting. Let us cultivate toleration of opinion and be generous in our estimates. Let us think straight, with an open mind, expecting to give and take and come to common conclusions. Let us use our political power without fear when with good purpose. Let us say nothing for mere novelty; nothing to catch the eye of a newspaper which scares itself for revenue only. Let us go on exercising more and more control in the interests of decency and thrift, and making the forces of righteousness more aggressive than the forces of evil dare to be.

There is no need of misgivings. What is upon us was bound to come. We should have expected it, and we can handle it. When the moral sense of the nation is once stirred it acts quickly and forcefully. A democracy with the finest possibilities for every one is better than a monarchy which, in one way or another keeps a whole people in bondage. Of course, there are difficulties. It is harder for a people to agree together and execute their purpose than for a monarch or minister who reckons not with the popular mind to settle things. But even old Talleyrand declared that public opinion was mightier than any monarch who ever lived. We have broken out roads and we will break out more. We will consider until we conclude what to have done, and then we will not be so squeamish about vesting executive officers with the power to carry it out. Our plan of government has already justified its being. It will do so more completely. When it has solved our problems upon a basis of reason and of right, as it will, the people will be the happier and the state the stronger, because in our education we shall be better balanced; in our industries we shall be more efficient, and in our politics and our religion we shall be more free.

(I.)—DUTY OF A RICH NATION TO TAKE CARE OF HER CHILDREN

BY ISAAC N. SELIGMAN.

Chairman, *pro tempore*, National Child Labor Committee, New York City.

It is a great privilege for me formally to open these interesting sessions, and I bring to you all a message of cheer and encouragement from the East. The honor of addressing you to-day falls on my shoulders as temporary chairman.

Our Chairman, Professor Felix Adler—that valiant champion in all movements for the betterment of his fellow-beings—has been called to Berlin University, where he is now delivering a course of useful lectures. It was he who, from the very first meeting for the organization of the National Child Labor Committee, has given it its best ideals, and from him our Board of Trustees and workers throughout the several states received constantly fresh incentive and inspiration in the performance and continuance of the work. I am actively interested in many fields of social work, but I venture to say that few if any of them have afforded me keener pleasure or more thorough satisfaction than my association with the child labor movement.

It is customary in formally opening proceedings to render an account of our stewardship—what has been accomplished; what goal it was hoped to achieve; wherein obstacles have been encountered. To review the operations of last year affords a pleasing retrospect. The Committee has practically no floating debt. It has been said that it is much simpler to finance a surplus than a deficit. The Committee depends for its financial support on voluntary contributions. A dozen or more gentlemen, deeply interested, subscribe annually sums from \$100 to \$500; but the Committee depends chiefly on regular annual membership, which comprises sustaining members, persons contributing \$25 or more; and associate members, persons contributing \$2 or more. These subscribers, to the number of nearly 3000, have enrolled as annual contributors, thus manifesting their sympathy in the waging of war against the evils of child labor. I trust that all those present, and those absentees who are inter-

ested in the work of the National Child Labor Committee, will enroll themselves as members, thereby having the pleasurable satisfaction of annually contributing their mite to the saving of child life, and keeping open in this fair land of ours the door of opportunity for every child. The work of the society can be more effectively increased, and greater results can be achieved, if it could depend on an annual income of \$10,000 to \$15,000.

In surveying the work accomplished by the National Child Labor Committee, we can honestly affirm that great progress has been made. Goethe, the German poet and philosopher, laid down three axioms as a test for the value of all undertakings:

1. What does one propose doing?
2. Is it worth doing?
3. Has it been well done?

I think we may fairly claim, after you have listened to the able speakers who will address you on many interesting subjects, that you will say to yourselves, the work is worth doing, and has been well done.

The subject assigned to me this evening is a particularly agreeable one—"Duty of a Rich Nation to Take Care of Her Children." The subject is a vast one, and hours could be profitably employed in discussing this problem. What is the duty of a wealthy nation to its wards? To what extent, and in what manner, shall a nation guard its weak, sick or suffering? There may be honest differences of opinion as to the duty of the state, or the nation, or private capital being enlisted to erect hospitals, homes or institutions, but there cannot be any difference of views as to the necessity of the nation passing such laws as will protect the lives of our tender children working in any path of life. I have always maintained that in spite of the prodigality and liberality of our Government in many directions, it has been remiss in doing so little for the needy, sick and poor. The large majority of institutions throughout our land have been erected, and are maintained, by private subscriptions and endowments. In England, France and Germany, in fact, in most European countries, the asylums for the young, hospitals, convalescent homes and so on are built and are conducted more largely under supervision of the government. The public is not asked to erect or maintain such homes. In our country the majority of hospitals, convalescent homes, institutions of all

kinds, although frequently aided by state funds, must find the wherewithal to subsist through private charity.

Opinions may differ as to which system is most productive of good results but it appears to me that the European system is sounder and wiser, and is less liable to cripple the usefulness of such institutions at times when the country suffers from financial disturbances. Already Germany's policy in establishing the old-age pension system has been taken up by France and England. Perhaps in time such a system will be followed in our own country.

It seems to me that it is the paramount duty of the state or nation to take care of, or aid, those who, by misfortune or accident, are disabled from earning their living. Private charity should not be continually called upon to do what is clearly the duty of the city, state or nation. There are many other directions in which private charity can be usefully dispensed if the state or city relieved the public of the financial burden of building, repairing and maintaining hospitals and institutions. We must realize that the socialistic spirit is everywhere spreading. We have lately seen in many European countries the policy adopted by the government giving work and devising undertakings for the unemployed during times of distress. Concessions are being continually made by the party in power more thoroughly to satisfy the middle and poorer community. If the government feels the necessity of giving work to the poor, is it not morally bound to maintain those unable to work? The natural liberality of the American to devote his means or private fortune to some useful end, and his prompt, chivalric and substantial answer to the appeals from the poor and needy, have apparently stifled the government's, state's or city's readiness to perform its clear duty in doing its share in proper relief. It is true that there are quite a number of people who believe that charities and relief of the aged, infirm and suffering can be more effectually managed by private charities than through the direct instrumentality of the state. I will concede that, in many instances, private management may prove more satisfactory; but the spectacle of some hospitals and institutions being forced to close their doors or restrict their usefulness from want of funds is deplorable. Such a condition of affairs cannot occur abroad under state control. However your view of the responsibility of the state for the relief or protection of the adult may differ from mine, I am satisfied that there can be no dissenting voice as to the impera-

tive duty and moral obligation of a nation, and, if rich, the greater the obligation, to guard and watch its *younger children*, and surround their tender lives with such safeguards as will better protect their health and lives, thus doing its share to enable them in time to become honest, decent and useful citizens.

Omitting from the discussion the obligation of the state, and not private charity, to erect and maintain orphan asylums, protectories for children, homes for little waifs, there is the overpowering moral duty of the state and nation to pass laws to regulate the number of hours of employment for children, say, under sixteen years of age, and to prevent them from working in occupations distinctly hurtful to their health and morals, and to prohibit absolutely any child under fourteen years of age being employed for wages. The various states, through the ministration and inspiration of the National Child Labor Committee, are actively engaged in this humane and noble task. We have now twenty-six state and local Child Labor Committees, whose efforts are co-ordinated and supplemented by our National Committee, and we are constantly receiving appeals from many states to aid them in securing better laws for the coming year. These are encouraging signs. It shows that public interest and sympathy in this great work have been awakened.

Do you realize that one in every twenty of all the children in the country from the age of ten to sixteen years is working in a factory, coal mine, trade or transportation, many of them slaving in the night in grimy workshops in big cities, deprived in most cases of elementary education, and forced in many instances to associate with vile and evil companionship? These are the crying evils which the National Child Labor Committee is trying to rectify, and these are the evils which our nation must suppress. Many difficulties are encountered in locating and ascertaining the source of the evils. The owners of factories employing child labor are, in many cases, loath to give information, and even the parents of the children working in undesirable occupations and surroundings falsify the ages of their children. It has been humorously said that a factory child passes from the age of eleven to the prescribed age of fourteen years without any due regard to the Gregorian Calendar.

The National Child Labor Committee hopes to secure, at an early session of Congress, the passage of a bill for a Federal Children's Bureau, the object of the bill being to investigate questions

of infant mortality, the birth rate, physical degeneracy, juvenile delinquency, and juvenile courts, desertion, illegitimacy, employment of children in dangerous occupations and all legislation bearing on the health, efficiency, character and training of children. This will afford the Committee and the public valuable information and ammunition to cope better with the evils of child labor.

Child labor means moral impairment and physical destruction, and it is the duty of the state to protect the tender childhood, and not allow the young lives to be sacrificed at the altar of greedy employers, or even by selfish parents. As has been nobly said: "The child means more to the community than any material gain." I firmly believe that, when we have established in *all* the states of the Union proper and restrictive laws to save child life, we shall have accomplished a great achievement. Kipling has truly said that we must teach people to live before we teach them to learn. When we, as a nation, have accomplished this beneficent end, we shall have conferred on our country a lasting blessing, and shall have left to generations to come a noble legacy, whereof we may justly feel proud. Give us your warm sympathy and active support, and we pledge you that we will not shrink or retire from the battlefield until we have won the fight.

(II.)—DUTY OF A RICH NATION TO TAKE CARE OF HER CHILDREN

BY PROFESSOR CHARLES R. HENDERSON,
Representing the Governor of Illinois.

His Excellency, Governor Deneen, has requested me to present his sincere regrets and to speak for him the welcome of our commonwealth and his own deep personal interest in the causes here represented. It is possible for citizens of Illinois to appear in this company with something of elation and hope, because we have fought a good fight and succeeded fairly well up to this time in advancing the interests of the working children in this region. We always think of the pioneer services of Mrs. Florence Kelley and her fellow-workers at Hull House and elsewhere, who have stood with womanly zeal and patriotic devotion for humane legislation. They have not only been interpreters of the poor to the rich, but they have helped the rich and the strong to discover their own best interests and their own best selves, for so long as a manager of industry is permitted to do wrong and to be cruel, even in ignorance, his conscience is hardened and his nobler nature never has a chance fully to assert itself. Therefore, while men have been made indignant by this movement in our state, they have doubtless come upon reflection and after experience to see that we do not represent a class interest, but the interest of the whole people and of the human race.

Our present Factory Inspector, Edgar T. Davies, also deserves a word of honorable mention in this connection. He has honestly endeavored, not only to enforce the law, but to study it in its working and effects with all fidelity; to secure competent advice, and to give wise counsel to those who have power to make laws. If our esteemed Governor were present, he himself could speak with confidence and pride of what has been accomplished. We acknowledge that much remains to be done in Illinois, but what has been achieved is a pledge and token of what earnest and brave hearts are determined to do in the future.

What obligations does our national wealth impose upon us in every commonwealth where industries are carried on?

(1) First of all our numerous and rapidly increasing wealth takes from us the paltry excuse that child labor is necessary to support industry. So long as strong and willing men and women are almost begging for employment it is false to claim that the commodities needed by human society require the exploitation of childhood.

(2) Nor can we say, with any shadow of reason, that the labor of any child under fourteen is necessary to support a widowed mother or a sick father. Indeed, no state and no nation can afford to offer up such a sacrifice to such an end. The widowed mother and sick father should, indeed, have the relief which their wants require, but let that be done at the expense of the capable and the successful, not at the cost of innocent and immature human beings. The nation must not use up its children in the present, because they are needed in the fullness of their strength in the future. No more short-sighted economic policy was ever pursued by a benighted people than the policy of destroying childhood in mines, mills and factories.

(3) If our industries were required to prevent all avoidable accident and disease due to the hazard of occupation and by a system of insurance, provide for families temporarily or permanently deprived of income by injury or invalidism, there would be far less need of either public or private charity than now, and children would not be asked to carry a burden which manufacturers should bear.

What are the specific duties of the nation, acting as it must, chiefly through state legislation and administration?

(1) First, it should provide bureaus for a thorough and a constant *investigation* of the condition of child life. An occasional, and even periodical, investigation is not adequate. The evils of child labor are constantly pressing upon our attention. There will always be a temptation on the part of certain short-sighted employers to think that child labor is cheap. So long as light machinery, driven by inanimate power, makes it possible, some one will be found to employ children. On the other hand, poverty will always present a strong incentive to ignorant parents to send their children where they can add a little to the immediate income of the family. Children themselves sometimes desire to escape from school, and to have, at least, a little spending money of their own. Both of

these are ignorant of the ultimate effects of factory work. The custom of immigrants to work with their children in the field has a similar effect, and country people are not aware of the dangers of urban industries. Therefore, the State and the Federal Government must provide a constant corps of inspectors and investigators for the study of the changing conditions in factories and mills.

(2) In the second place, we must work for *uniformity* in the laws of the several states in order that the manufacturers of the different states may be treated fairly in their competition with each other. Whether this shall be done by some Federal law or by state laws introduced through a joint commission cannot be discussed at this moment, though it deserves full attention.

(3) Uniformity of legislation is not so important as a *higher standard* for legislation—though both are closely connected.

(4) In the fourth place, we must work out far more completely than we have ever done yet a policy for the transition period between the play and school activities of young children, and the steady occupations of mature persons. This period, extending from about the fourteenth to the seventeenth year, has not been sufficiently considered in our movement. It should receive much more prominent place in the Anti-Child Labor Creed than it has yet had. The fact that a discussion of the connection between child-labor legislation and trade instruction of young persons is on our program shows that this thought has found a welcome in many minds throughout the Union. Indeed, our cause has been seriously hindered hitherto because it was thought that we had not made provision for the proper occupation of children during this transition period. We have given apparently too much ground for the declaration that it would be better to keep the child busy in the factory than to let him run idly on the streets. Of course, no such alternative is necessary or was ever thought of by any of us, but we must in our discussion remove all just ground for this criticism.

THE FEDERAL CHILDREN'S BUREAU A SYMPOSIUM

I. BY LILLIAN D. WALD, New York.

Member of Board of Trustees of National Child Labor Committee.
Headworker, Henry Street Settlement.

Although the National Child Labor Committee stands sponsor for the bill introduced into Congress for the establishment in the Department of the Interior of a Children's Bureau, the Committee can no longer claim sole guardianship of this measure, nor would it indeed desire to do so.

Two and three days ago, twenty-five thousand clergymen in these United States proclaimed once again from pulpits of all creeds the eternal message of the value of the child, outlined to their hearers the modern conception of childhood's claim upon society and the obligations to the child of a society which has prospered by all the results of a progressive civilization. They asked their congregations, whether Jew or Gentile, to consider and support this effort to bring the child into his heritage of this civilization. And not only have the twenty-five thousand clergymen and their congregations shown their desire to participate in furthering this bill, but organizations of many diverse kinds have assumed a degree of sponsorship that indicates indisputably how universal has been its call to enlightened mind and heart. The national organizations of Women's Clubs, the Consumers' Leagues throughout the country, college and school alumnae associations, societies for the promotion of special interests of children, the various state Child Labor Committees, representing in their membership and executive committees, education, labor, law medicine and business, have officially given endorsement. The press, in literally every section of the country, has given the measure serious editorial discussion and approval. Not one dissenting voice has it been possible to discover—not one utterance contradicts the principles that have been laid down by these various representatives of humanitarian thought and unselfish patriotism throughout America, and which values they believe the bill will advance, or that within its scope lie potentialities for such broadening.

It may be, at first, something of a shock to hear of taking the child out of the realm of poetry and pure sentiment into the field of scientific, organized care and protection; but only to the superficially sentimental could it appear that the poetry and purity of childhood might be sacrificed by using all the fruits of modern thought, study, experience and knowledge to their advantage—"Even the least of these." What would the Bureau do? What measures for the advantage of the child, the future citizen and the country would the Bureau further? What innovations in governmental functions would the Bureau introduce? These are pertinent questions that may well be asked, and which must be answered to the satisfaction of the men in both Houses of Congress before we shall have the right to ask them to vote for its creation. The Bureau would be a clearing house, a source of information and reliable education on all matters pertaining to the welfare of children and child life, and especially it would investigate and report upon the questions now nowhere answered in complete or unified form, and whose enormous importance to national life is so strikingly evident.

It would fix upon government the responsibility. The attitude now is not unlike the small boy's, of whom my friend in New York tells. He had told him of the story of Nero. The brutality of the monster was vividly related; how he slew his mother, how he played while Rome burned, etc., etc. The boy showed no concern and to draw him out my friend said, "Well, what do you think of that kind of a man?" "He never done nothin' to me," quoth the boy, with a shrug.

The Bureau would investigate legislation affecting children in the several states and territories, and all other facts that have a bearing upon the health, the efficiency, the character, the happiness and the training of children. Orphanage has many aspects that should call out the wisdom of the sages. Perhaps not enough has been done. Perhaps, in some respects, too much. The orphan is a child and orphanage means to some people, even now, the commitment to an asylum, the child lost in the obsession to an institution. Many are like the pious philanthropist who prayed, "Oh Lord, send us many orphans, that we may build the new wing to the asylum." Nothing would the Bureau do to duplicate any work now being done by state or federal government, but it would strengthen this work and bring into immediate usefulness all of the statistical facts

that may lie in the treasure-house of any governmental department or any private association. Practical co-operation of this kind, based on intelligent sympathy, has already been assured by the far-seeing chief of the Educational Bureau and the head of the Census Bureau. As much of the results of their researches as would enrich the Children's Bureau would be laid before it almost without the asking, and yet, important as is their information and their knowledge, it covers only a part of what pertains to the whole great question of the wisest and most enlightened guardianship of our children—the most valuable natural asset of our nation. Literally the Education Bureau is the only thing that has been established by the government which could be directly construed for the children,—from which it might be said that we as a nation are indifferent.

The Children's Bureau would not merely collect and classify information, but it would be prepared to furnish to every community in the land information that was needed, and diffuse knowledge that had come through experts' study of facts valuable to the child and to the community. Many extraordinarily valuable methods have originated in America and have been seized by communities other than our own as valuable social discoveries. Some communities in this country have had more or less haphazard legislation, and there is abundant evidence of the desire to have judicial construction to harmonize and comprehend it. As matters now are within the United States, many communities are retarded and hampered by the lack of just such information and knowledge, which, if the Bureau existed, could be readily available. Some communities within the United States have been placed in most advantageous positions as regards their children, because of the accident of the presence of public spirited individuals in their midst who have grasped the meaning of the nation's true relation to the children, and have been responsible for the creation of a public sentiment which makes high demands. But nowhere in the country does the government, as such, provide information concerning vitally necessary measures for the children. Evils that are unknown or underestimated have the best chance for undisturbed existence and extension, and there where light is most needed, there is still darkness. Ours is, for instance, the only great nation which does not know how many children are born and how many die in each year within its borders; still less do we know how many die in infancy of preventable dis-

eases; how many blind children might have seen the light, for one-fourth of the totally blind need not have been so had the science that has proved this been made known in even the remotest sections of the country.

Registration and our statistics on these matters are but partial, and their usefulness is minimized by the unavoidable passage of time before their appearance. There could be no greater aid to the reduction of infant mortality than full and current vital statistics of children, such as no one community can obtain for itself, and for want of which young lives, born to be valuable to society, are wasted. We realize only occasionally, or after the occurrence of some tragedy, how little is known of other important incidents of the children's lives. We can not say how many are in the jails or almshouses, though periodically the country is stirred by some newspaper report such as that of the little boy of twelve sentenced to five years in a federal penitentiary, or that of a little boy confined for some months upon a trivial charge and incarcerated with a murderer, and other evil men and women, in the cell of a county jail. Outside the few states which have juvenile courts, there is chaos in the treatment and punishment of difficult children, and largely because of lack of knowledge concerning this important matter. This information can not be effectively obtained by private agencies. It is too vital to be left to that chance. Only the federal government can cover the whole field and tell us of the children with as much care as it tells of the trees or the fishes or the cotton crop!

I remember that some three years ago, when it was our pleasure to bring this suggestion before the President, his first expression of approval was, if I recall rightly, that "It is bully." It was a coincidence that the Secretary of Agriculture was departing that same morning for the South to find out what danger to the community lurked in the appearance of the boll weevil. That brought home, with a very strong emphasis to the appeal, the fact that nothing which could have happened to the children would have called forth such official action on the part of the Government.

What measures for the advantage of the child and the country would the Bureau further? No direct responsibility or administrative function for furthering new measures would fall upon the experts of a Children's Bureau, but proceeding by the experience

of other scientific bodies there would be ample justification for employing the best minds of the country for the application of the knowledge gained, by using the stimulus of suggestion and education. It takes no stretch of the imagination to believe that, with the light of knowledge turned by responsible experts upon all phases of the problem of the child, the American people could be trusted, if not with the immediate solution, then with serious consideration, for what appears to be a national apathy is not really so in fact. What innovation in the governmental function would this introduce? This measure for the creation of a Children's Bureau can claim no startling originality. It would introduce no innovation—no new principle—in the function of government. It is along the line of what we have been doing for many years to promote knowledge on other interests, on material matters. Look carefully into the history of the development and present scope of the various bureaus within the authority of the Government, and ample and fascinating analogies will be found.

Other countries, too, have awakened to realize the import of efficient guardianship of their children, have gathered expert information and are using it under the leadership of trained specialists. The French call this development "Child Culture," which implies the use of scientific minds and trained powers, co-ordinated functions, and the protection of the state to the end of efficient manhood through a well guarded childhood. Current literature every day shows the trend of civilized people to fix the responsibility upon the present generation to preserve and cultivate its resources, indeed charging as a crime against us any reckless waste of these. The English children's bill, that within a day or two has become "An Act," is the best example of this as regards the children. That bill is a most remarkable document indeed, covering practically every incident in the child's life that might come within the concern of the Government. Its ninety folio pages constitute a complete code, and reflect not only the wide range of the government's information, but cover every interesting phase of the development of this vital, social and economic matter. A "veritable children's charter," it has been called. The forms of the English government and ours differ. We do not desire the code; details and administration can be left to the states; but we do desire and we most urgently need information, and the best means of broad publicity on all

matters relating to the children, that the national intelligence and conscience may be stirred. The full responsibility for the wise guardianship of these children lies upon us. We cherish belief in the children, and hope, through them, for the future. But no longer can a civilized people be satisfied with the casual administration of that trust. Does not the importance of this call for the best statesmanship that our country can produce? I ask you to consider whether this call for the children's interests does not imply the call for our country's interests. Can we afford to take it? Can we afford not to take it? For humanity, for social well-being, for the security of the Republic's future, let us bring the child into the sphere of our national care and solicitude.

II. By JANE ADDAMS.

Hull House, Chicago, Ill.

There is very little to add to all the pleas which have been made for the establishment of this Federal Bureau in the interests of children. I shall, however, try to point a moral and adorn a tale from the history of this Child Labor Committee itself.

In the very early days, its annual meetings consisted largely of the people working in their various states to secure some adequate child labor legislation, and they came together to swap stories and to cheer each other forward on their very difficult and stony ways. Gradually it became evident that there was needed at least one central secretary who should discover those states in which no one was even working for child labor legislation; who might be able to visit those states and arouse interest. Another of his duties should be to look over all the states of the Union, dividing the people, as it were, into territory where the first important work needed to be done, and into another territory where information needed to be furnished toward the best methods of securing legislation, and still other territory where unbridled enthusiasm needed to be restrained.

Gradually it was discovered that more than one man was needed, as is shown by the reports of the three secretaries of the Committee, one representing the New England States, another the

Southern States, and still another the States of the Ohio Valley. They prove how absurd state lines are when it comes to industrial questions; how exactly the same industrial conditions prevail, for instance, in that little three-cornered spot near the meeting of two rivers which contains a piece of West Virginia, a piece of Pennsylvania and a piece of Ohio, and where the child labor legislation in the three states differs almost as widely as possible.

Of course, the moral is that a Federal Bureau naturally would have nothing to do with state lines, and that only a Federal authority could adequately deal with such a situation.

The growth of this Committee in still another direction illustrates the need of a Federal Bureau which shall furnish information in regard to children. During the very first years in the life of the Committee, it was found necessary to gather careful information, not only about child labor laws, but also in regard to compulsory education laws, because the two must be articulated in order to work smoothly. In later annual meetings a great deal was said in regard to industrial education, both as tending to hold children longer in school and fitting them for work. It was discovered, however, that the educational authorities knew nothing in regard to the children during those first two or three perplexing years after they left school and went to work. The children themselves could not find any connection between the things they had learned and the things they were called upon to do, and they all believed, as one boy said to me, that the commencement orator knew what he was talking about when he said they were going out into a cold world. Thus the Child Labor Committee, in pursuit of its aims, was forced from one aspect of child life to another. To-night, as you see, the talk has come more and more to a consideration of health—"conservation" is a popular word—and the Committee is now working for the conservation of the health and efficiency of the children of the nation.

What does all this mean? Certainly two things. One is that these great questions of education and child labor cannot be adequately cared for by states whose boundaries are determined by rivers and mountains, and seem to have nothing to do with industrial problems, and that these problems therefore must be dealt with by a federal authority having power to transcend state lines. Secondly, that we cannot confine our attention to child labor and detach

it from all other things which pertain to children, and that we are forced into a consideration of education, of health, of recreation, into all sorts of other questions which can only be adequately dealt with and their inter-relation understood, if some bureau of dignity and authority is empowered to consider them.

Only the United States itself is in a position to take charge of such a bureau. Does it not seem that the small effort of the National Child Labor Committee—the effort was small at the beginning, and it is small yet compared to the need—illustrates the need of a Federal Bureau which shall be concerned with the interests of children? Is it not inevitable that this Committee itself should be the way to its establishment in Washington? The Committee goes on to Washington for a hearing before the Committee in the House of Representatives on January 27; but such a Bureau will only be established if throughout the United States there is a great interest in it, if the people everywhere feel that it is necessary, not merely that another Bureau shall be added to an already complicated series of governmental bureaus but that a Bureau shall be established which is going to do something which the people demand and feel ought to be done. Such action on the part of the Government may in time do away with the popular impression that the Federal Government is remote and far away, that it seems to concern itself more with canned meats and fisheries than it does with things which have to do with human life and a sane social progress. Nothing after all can make the Government appear quite so—shall we say vital—to the best interests of the nation as the establishment of a Bureau which would concern itself with the appealing and the rewarding task of looking after its children.

III. BY LEO ARNSTEIN.

New York.

It seems peculiarly fitting that the subject of the Federal Children's Bureau should be discussed at a meeting of the National Child Labor Committee, a society whose very existence is based upon the principle that there is a fundamental distinction between the adult and the child, and that in order to have an adult population worthy of the name we must cherish and guard the child in its formative period.

The advisability of establishing a Federal Children's Bureau resolves itself quite naturally into two questions: 1st, is the child worth saving? 2nd, does the proposed establishment of a Federal Children's Bureau give promise of accomplishing the desired end? Assuming that the child is worth saving, I shall take up for consideration the second question.

I think that it will be generally admitted that success in any field, whether it be that of science, social work, business, or manufacture, is predicated upon two conditions—the correct ascertainment of facts in the first place and the proper use of them in the second.

The inter-relation between the ascertainment and use depends upon the success with which these facts have been gathered, correlated and grouped, and unless this has been done properly with an eye to accuracy and availability, and with the idea of using them for a definite purpose, such statistics are of little if any real value.

One of the chief objections urged against the Federal Children's Bureau is that it will duplicate the work now done by the Census Bureau, an objection which, if true, would be of weight, as we are certainly all agreed that duplication of effort is by all means to be avoided in this present state of society where so much remains to be done, and the means at our disposal are so few and ineffective. But as a matter of fact there is not even a remote possibility of duplication, because unfortunately the statistics gathered by the Census Bureau are of practically no value for the purposes contemplated by the Federal Children's Bureau. They are gathered according to some theory of statistical method, which makes them of absolutely no value from the standpoint of changing and improving the conditions under which the children are at the present time being brought up.

If anyone, upon the publishing of the census report, were to go to a locality which, from the census report, he judged to be in a particular condition of development, he would feel like a modern Rip Van Winkle. He would come to the place expecting to find it as depicted in the census report, and he would find everything changed—customs, laws, methods of legislation—everything. Eight or nine years might have elapsed since the particular condition which he was looking for had been mirrored, and he would find that the thing that he was trying to do, the thing that he was trying to improve, did not exist in the form in which he had found it presented in that report.

As a matter of fact, the census report at the present time is a huge mass of inert statistical information, and to behold it one feels that there is a tremendous economic waste there, the sort of waste which would grieve a manufacturer if he thought that there was lying at hand a large amount of potential energy which by one more operation would be changed from an inert, useless mass to a powerful dynamic force, to something which would accomplish great ends; but that if he were not allowed to add that one operation, it would lie there unused and useless.

An example of the loss because of uncorrelated massing of statistics that I refer to, is the fact, for instance, that we find in the census report that out of the 579,000 illiterate children recorded in the United States, 500,000 were contained in thirteen states, the other 79,000 scattered over the remaining ones. There is a fact which seems fairly to bristle with meaning; it means everything, and yet what use is going to be made of that discovery unless there is some particular bureau which exists for the purpose of uncovering that fact and using it for the eradication of conditions of this kind.

By a proper grouping and a frequent publication of the facts that are gathered by the Children's Bureau, we shall, in the first place, obtain publicity. Now, when I say publication, I do not mean the publication as it is done at the present time with the Census Bureau statistics. They are indeed published to the extent that if somebody, being particularly interested in the subject, is prepared to give up a great deal of time and is willing to delve into a mass of figures which are recorded there, he can get out the fact that he is looking for.

The publication that I mean is the grouping of these figures, these dead figures, until they make a living mass, and then not to allow them to remain buried there, but send them forth—bring them home to every community that needs them. Do not do as you do at the present time, allow these people who want this information but who do not need it to get these figures, but rather take it to those people who do not want it, but who do need it; the people who do not feel the need of this kind of information are the ones to whom it should be brought home most strongly. Publicity will do more probably toward eliminating evils than legislation. Turn the light of publicity on these evils and they will disappear of themselves.

The further effect of these reports will be to inspire and invigorate those localities which most are in need of a quickening force. There are bound to be in a widespread country such as this a great many communities, which, by reason of their better facilities, their greater opportunities, are going to be considerably above the level of the average, and very much above the level of the least advanced sections. Now, to take these highest points, find out what is being done in the best communities and bring this information to the attention of the people who most need it—that will be doing publicity work of a kind that will count.

In so many cases, bad conditions, inhuman treatment if you will, exist not because of any particular brutality or cruelty on the part of the people who are at fault, but mainly because of inertia. Every business man in this audience will feel with me when I say that one of the hardest things to overcome in a business establishment, is the fact that if you want to change anything, no matter how small the improvement may be, you are met with the statement that it has been that way for twenty years, and there is no reason for changing it. I think that a number of the bad practices which exist in relation to children, exist, not because the people are brutal, not because they are more cruel than others, but merely that they have been calloused to seeing these conditions, and associating under such circumstances, and they do not appreciate the undesirability of what is being practiced there, until they have it brought home to them by contrast, by comparison.

I want for just a moment to touch upon the National Bureau of Education. Those people who feel that the prerogative of this department will be infringed upon by the proposed bureau mistake its purpose and its scope. The Bureau of Education needs information about the child which it does not get at present and the Children's Bureau will need educational information which the Bureau of Education can furnish, and so they will supplement each other and make the work of both departments more effective.

A Federal Children's Bureau will, of course, have far greater prestige and far greater authority than any state organization could have. The jealousy and suspicion between states which now so often prevent the less advanced from profiting by the experience of a more progressive sister state, would be absent. It will eliminate conditions that give rise to the remark that the United States is a

place where old failures are tried over again, only on a larger scale. It is very sad that such should be the case, because aside from the tremendous waste of money, there is a waste of time and a waste of progress which can never be made up. It is truly a pity that there should not be some central organization which can collect all the facts that have been learned by the experience in the past and use them for the benefit of the present and the future.

I think that no better investment of any kind can be made than the establishment of a Children's Bureau as a Federal Department at Washington.

IV. BY HON. BEN B. LINDSEY,

Judge of the Juvenile Court of Denver, Col.

After an experience now going on nine years in the Juvenile Court of Denver, I feel naturally a particular and special interest in this bill. All of our people in Colorado interested in work for children especially feel that interest because eight years ago, as Mr. Walsh, the President of our society for the protection of children and animals, knows, an effort was made to get the House to pass a bill providing for a Bureau similar to this one, and it has been a matter of chagrin during that experience to receive letters from the officials of various governments of Europe, even from Japan, wanting to know where to apply to get certain facts, certain data, regarding the children of this country and the relation of childhood to crime, and not to be able to answer those gentlemen satisfactorily. I remember recently, when the children's bill in England, that great measure that has been discussed at this conference, was being considered, receiving a letter, I think from one of the under secretaries, to get certain facts, and it was simply impossible to provide the information that was needed and expected that this Government could furnish; and I, as a judge of one of the courts of this country dealing with children, felt very much embarrassed that we could not say that our Government was able to furnish such information.

We have found, in our efforts to help these 100,000 children that have been said to be dependent, that nothing is so important as facts. In my humble judgment—I may be wrong, and that is

just why we want a Bureau of this kind, in order that I may know and you may know whether I am right or wrong—in my judgment there are 100,000 children, dependent and delinquent, coming to the courts of this country every year, and within the period of sixteen years that means 1,600,000 children coming to the courts of this nation in every generation of childhood. Is this great Government of ours, with sufficient facts already gathered in this imperfect way to demonstrate that fact, going to neglect this opportunity of spreading the real information, of gathering together the real causes of this awful condition that affects the children of this country?

I was in a certain city recently, and I went to the chief of police and asked him how many children had been in jail that year. He said 100. When we investigated the records, we found there were 650 boys alone brought to the jail in that city of less than 150,000 people. I went into another city of less than 200,000 people, and when I asked the jailer how many boys had been in jail he said five or six hundred. When we investigated the records, we found there were 4000 arrests in that city among the boys alone under twenty years of age and over 2000 brought to the jail were under seventeen years of age.

If we had a Bureau of this kind it would stimulate the gathering of reliable statistics as it can not be stimulated or done in any other way. The head of a Bureau of this kind would send to the head of a city a blank to be filled out and kept, and it is going to stimulate the official who is to fill it out to keep records and return them to the Government. We have had some experience of this kind showing that this is done. Our State Board sent blanks to different judges, asking for information on this subject, and the information came; but it does not come in any other way. There must be some kind of stimulus, if you please, to officials to get this information together, and it is going to come through a Federal Children's Bureau, and in my judgment in no other way.

For instance, how many boys brought to jails in the cities of this country return within five years? In my own city, through private effort and investigation, we found sixty-two per cent. of all the boys brought to jails returned in five years for worse offenses. In Chicago, under the Commercial Club, about ten years ago, a similar investigation was made, and they found that seventy-five per cent.

returned in five years. What effect does the work have in preventing crime? Another thing, twenty per cent. of the boys in some cities of this country come to jails before they come of age. One out of every five mothers' sons comes to the jails in the cities of this country, according to some private investigations. Isn't that a fact, which this Government should know and be able to demonstrate?

In the nine years of work we have been forced into a certain position in this matter that has perhaps led us to see the necessity of this Bureau more than some other courts. We have, in my court alone, two stenographers furnished us by the county, who work from morning to night largely answering letters and furnishing information that has been gathered in this imperfect way not only in this nation, but in the world. Not less than 3,000 and, in my judgment, nearly 5,000 letters are sent out from there every year; and one of the embarrassing things that has made me ashamed almost of my country is that in answering letters to all the world I have to tell them constantly that these facts are not gathered by our Government, and they can not understand. Sentiment is not, perhaps, a justifiable argument for the establishment of such a Bureau, but it is nevertheless a proper one when it is a practical one. This Government can do no one thing that will be more worthy than to say to the nations of the world and all the cities of this Union asking for this important information about our dearest possession, the children, that we have a Bureau, and here we centralize and specialize and focus all these facts upon this important subject of the child; and however much the Bureau system may have been abused that is not any reason why a Bureau that is needed and necessary, as this for the children is, should not be established, and I do earnestly hope that the Congress will pass this bill.

V. BY HENRY B. FAVILL, M.D.,

Chicago.

It would be a very false conception of the problem which we have met to discuss if it were assumed that in purpose the forces which we try to overcome are directly antagonistic. I think it is safe to say that with very rare exception there is not an em-

ployer of children in mine, factory or sweatshop that would not prefer a different and better order of things.

Conditions of industrial life develop slowly and compactly, and it is as a final and at the moment inevitable phase that child labor bursts into its full enormity. So the employers of children find themselves confronted by a condition quite irrespective of individual preference; a condition so related on the one hand to industrial competition and cost of production, and on the other to labor competition and necessity to exist, that they move on with a fatalistic insensitiveness that puts them in the minds of many into a class of malefactors to whom are too readily ascribed the responsibility for the outrages which they more or less perpetrate. That they are terribly culpable is true in spite of extenuating circumstances, but that they are voluntarily initiating the system which we deplore is not at all true. What they do they do because they rest upon that ancient fallacy that business necessity is paramount to other social considerations.

They are not alone in this misconception. Thousands of right-minded, fairly intelligent men and women participate in the expression which has hardly the dignity of an opinion, that radical disturbance of the social order is bad. I speak slightly as to so-called opinions on these matters because it is eternally true that no opinion is worthy the name which has not as its foundation a reasonable understanding of the facts and I assert without hesitation that the majority of those highly respectable conservatives who are satisfied to let things work out their own solution, are profoundly ignorant of the conditions which they condone. To the masses of citizens who are indisposed to move in these measures of reform are to be added still other masses, who, because of their notions of political economy, object to legislative regulation or to administrative control through governmental bureaus.

Without approaching the abstract argument upon this subject, those who have made this matter a deep and conscientious study, reach conclusions applying to the concrete facts with great definiteness. Absolute control of the health of the individual can never be the function of the state. Control of the conditions under which the lives of the people shall be lived and their energies expended is an inevitable necessity. The state will approach this problem from the standpoint of self-preservation. Defective health is the

foundation of crime, pauperism and degeneracy as well as that widespread inefficiency due to obvious disease.

All sociologic forces have come to recognize this fact. The physical well-being of the people is the deepest interest of the state. If the state is to undertake the establishment of conditions designed to safeguard health, it is imperative that the foundation of accurate knowledge upon which to base radical and comprehensive legislation be laid. The detail of such legislation is too remote to engage our attention here. What we must strive for is knowledge, and to this end, the interested forces demand a National Bureau of Health, the most valuable function of which shall be the culture of intelligence upon these subjects.

If this proposal shall become effective, it will appear to many that the end which we seek has been accomplished. That will not be true unless the interests which we represent be specifically defined. The medical profession has only within a few years come to realize that child health and adult health present distinctly different problems. Our literature upon the physical aspects of childhood is very recent and meager. Our scientists who have devoted themselves to child welfare are comparatively few; yet one glance at the broad proposition should be convincing. Consider the difference in the questions involved as to how an individual goes out of the world and how that individual comes into the world. Is it not obvious that with reference to determining the type of an individual and hence his value to society, the first few years are inexpressibly more important than all the rest? Let us go even further than that, and say that questions involved in the period before birth or conception, which are coming to be recognized as profound and crucial, are only to be interpreted in the light of the deepest knowledge of child life.

That there must be in this general pursuit of broad intelligence as to health problems, a specific and definite examination of the child problem, admits of no question. It seems best, therefore, that a distinct bureau in this broad movement should be secured. It is true, however, that there are questions of immediate importance which need not wait for this extensive investigation. Among these questions is child labor. As a definite factor in our social economy, the iniquity of its existence is enormous. There is inherent in it the same ethical stigma that there

is in slavery or polygamy or in any other widespread national moral obliquity. It ought not to exist and the intelligence and effort of all right-minded citizens should be committed to its extirpation.

There are questions, it is true, which are open to reasonable difference of opinion. What constitutes the proper age for labor; what are justifiable considerations in determining customs of labor, are appropriate studies for a health bureau. Those, however, are outlying territories. The plain unvarnished proposition, that children shall bear the industrial burden of this people cannot much longer be countenanced.

My privilege to address this meeting comes through my connection with the warfare upon tuberculosis. Could one come from a territory more deeply concerned with this issue? Where is found the safety of any individual against tuberculosis? In physique. Where is laid the foundation of physique? In childhood. Where bear the heaviest the burdens of bad hygiene? In childhood. Where concentrate most the direct forces of infection? In childhood. So far as tuberculosis is concerned, there is no hope for the race until the territory of childhood has been fortified. History should teach us to be without surprise that a great people can have gone on to such development with so little foresight.

Foresight is a rare combination of qualities. A joining of vision with judgment; an attribute of maturity; a power by no means universally vouchsafed to men. Myriads of people see the menace of an iniquity, and fainthearted turn aside with a feeling of impotence. Recognition of the difficulty without conviction as to the moral obligation which it implies accomplishes nothing. Under the guise of conservatism masquerade indifference, timidity and self-interest. True conservatism is concerned only with genuine progress, hesitates only at mistakes; may be wisely quiescent, but never supine. It is curious that foresight and conservatism having so much purpose in common should be, in fact, so divergent through the major part of their respective paths.

In social development the struggle is always between those who have vision and those who have caution. In this alignment, the forces of caution under the conception of prudence receive very exaggerated recognition and support. Those who have vision and imagination command undue criticism and discredit. The time has

come to act in behalf of the child, and those who see must dominate those who fear to move, and to this end all sympathetic forces must be combined. That there should be any difference of opinion as to the imperative need of properly rearing and protecting the children of the nation is unthinkable. In fact there is no such difference of opinion. The thought of those who think at all is unanimous upon this subject. The problem is how to combine the insight of those whose sympathy has reached the root of the matter with the effectiveness of those who have the courage and ability to deal with it. These forces can only be combined under conditions which satisfy both. There must be a broad and evolved policy of correction and protection. There must be a convincing mass of accurate information. So far as appears, nothing offers to satisfy these requirements but a National Bureau devoted to the welfare of the Nation as represented in the growing child. We hesitate not at all in adding our influence to the movement in that direction.

VI. BY PROFESSOR CHARLES R. HENDERSON,
University of Chicago.

I. There are already several important national organizations charged with the watch care of public health interests in this country; among these is The American Health League, established as a committee of the American Association for the Advancement of Science. This league aims to promote unification of Federal action in relation to the health of the people of the land, and to forward local interest in matters of sanitation and hygiene. It is a laymen's movement, inspired by a scientific spirit. The American Medical Association, with its special section on Public Health, lends its high authority to a movement of trained medical experts. The American Public Health Society is also under the direction of specially trained medical men. The Public Health and Marine Hospital Service is at once official and expert, with a remarkable history of guarding the quarantine ports and fighting fever during the past century. All of these associations center their attention upon the physical interests of all classes and all age groups throughout the nation.

2. The Bureau of Education is already a "Children's Bureau" in the sense that it aims to publish the results of scientific study of children, and seeks to promote the knowledge of child nature and the best methods of education and organization of schools. All friends of children should strive to support the efforts of this Bureau, at whose head we have had distinguished men, and under its present administration it continues to deserve the respect and warmest support of the nation.

3. And now we have the National Child Labor Committee, which aims to promote the physical and moral interests of the working child and to secure for it suitable education. Therefore we are here interested in each of these agencies, since they are all working for the same end from a different starting point, and by various means, and they all have their claims upon our moral co-operation.

4. The specific call of this meeting and this hour is for the establishment of a "Children's Bureau" in the Federal administration. From the standpoint of those who are asking concentration and co-ordination of public health activities at Washington, this is a reasonable effort. A Bureau which aims to promote all the interests of childhood would, of course, include care for their physical well-being.

VII. BY MRS. FLORENCE KELLEY.
New York.

I have been deeply impressed with the meagreness of our knowledge of what is to-day being done for the children, after all these years of effort. For instance, in the southern states there has been much patient agitation, much constant effort to get statutes on the statute books. We know that in Louisiana there is an exceedingly energetic factory inspector and in the neighboring state of Mississippi there is no enforcement, no official whose duty it is to give us information. In the other neighboring state of Alabama an unfortunate official was appointed with the three-fold duty of inspecting jails, insane asylums and cotton mills. He did not do it very long, he committed suicide. I have learned since I came here of the current appointment of his successor.

In North Carolina there is a Commissioner of Labor. There are no truant officers, no factory inspectors, and the Commissioner of Labor has no right of entry into any factory. Wherever he enters it is as the guest of some friend. He has no *right* of entry.

In our own state of New York we have an admirably organized factory inspection bureau. Every day the inspector finds from two to twenty children working illegally in Greater New York. That is after we have had a child labor law and factory inspection for twenty years. In the city of New York the bureau of inspection sends us every day a list of the children found illegally at work the day before, a duplicate of the list is sent to the Department of Education, in order that the children may be returned to school. They must be either legally at work or in school until they are sixteen years old. Hitherto a subordinate clerk in the Department of Education seems to have put that list into the waste basket. When, this fall, we inquired of the head of the truancy department what his method was for using that check list, he seemed entirely unaware that it had ever been sent to his department or that such a check list existed.

In the city of New York we have eighty-three salaried truant officers. Every time the State Department of Labor finds a child illegally at work who has never had working papers, it thereby shows that some school official has let that child go illegally from school (assuming that the child had ever been in school). This fall one young college graduate undertook the task of following up children whom the factory inspectors' reports day by day showed to be illegally at work, to learn why it was that eighty-three city truant officers let from two to twenty children be found illegally at work every day.

Some interesting things transpired. One was that not very long ago one of the eighty-three truant officers had been regularly drawing his salary while serving also as interne in a hospital. I do not know anyone except a convict serving a term in a penitentiary who would be less able to get children into school than an interne in a hospital. Other truant officers were found who appeared to be turning a dishonest penny, not by getting children into school but by escorting the children and their parents to the office of the Department of Health to facilitate their getting working papers to get out of school.

We have had compulsory education for twenty years just as we have had factory inspection, but we have never had any official whose duty it was to know the daily methods of the truant officers.

It is nobody's sole duty to inspect the truant officers. But one young volunteer in a few months showed that if those officers have to report in writing every day what they do with their time, and if those reports were public documents which we could all look at as we can look at the factory inspectors' reports, we may get the same sort of efficiency on the part of our school authorities that we have already to an admirable degree on the part of the Department of Labor in its bureau of factory inspection.

We asked how often the truant officers report to the head of the department and found that some of them report once a week,—not directly to him but to the district superintendent,—and by the time the information reaches the center, instead of being twenty-four hours old as in the case of the factory inspectors, it may be thirty-four days old and the child may have moved and may be lost forever to the schools.

We wrote to the Commissioner of Education at Washington asking for a standard daily report blank. That was about three months ago. We have received no letter in reply; we have received four pamphlets of irrelevant information but no reference whatever to a daily truant officer's report. We wrote to several heads of truancy departments in different states. The head of the truancy department in our own state wrote after long delay that he had never seen a blank for a daily report for truant officers, but he had no doubt that if we wrote to every city in the State we might find one.

Now, that is the sort of chaotic lack of knowledge and lack of standard of work which we want the proposed federal bureau in the interest of children to deal with. It ought not to be necessary to write to every city in the United States with the hope that ultimately one may find a truant officer's daily report blank. We have no authoritative list of persons responsible for keeping non-working children in the schools and no authoritative list of all the persons responsible for the inspection of factories in this nation.

We have sadly little authoritative knowledge with regard to the children who work in any state. I believe that in New York we come a little nearer to having up-to-date knowledge than anywhere

else, because once a month the Department of Labor prints a list of the convictions obtained during that month for violation of the child labor law.

We need to know about the prosecutions, because there are always sinister charges that it is only petty offenders, little people who cannot retaliate by insisting on the removal of the too efficient inspectors, who are prosecuted. That is a cruel charge and if it is not true it ought never to be made. It is only by giving us full publicity which in most states we do not get that that charge can be silenced.

Finally we want to know what our children know when they leave school. In many states they need not go to school at all. In some southern states thousands do not go at all. In many other states they have to go until they have reached a certain nominal age and then they may leave school whether they know anything or not. Even here, in Illinois, it is only necessary for a Syrian child to say that it can read and write in Syrian, or a Russian child to say that it can read and write in Yiddish. If it has not attended a public school it is not required to read and write in the language of the people among whom it is going to live all its life.

We want objective tests and one centralized bureau to standardize those tests instead of the chaotic condition in which we are to-day.

VIII. BY SAMUEL McCUNE LINDSAY, PH.D.,

Professor Social Legislation, Columbia University; Vice-Chairman, National Child Labor Committee.

Why do we who are associated in this child labor movement, want to see a Federal Children's Bureau? Our reasons are set forth in the section which outlines the compass of the Bureau itself, section two of the bill which is now re-introduced in Congress and is still pending in the House and the Senate. It reads:

"The said Bureau shall investigate and report upon all matters pertaining to the welfare of children and child life, and shall especially investigate the questions of infant mortality, the birth rate, physical degeneracy, orphanage, juvenile delinquency and juvenile

courts, desertion and illegitimacy, dangerous occupations, accidents and diseases of children of the working classes, employment, legislation affecting children in the several states and territories, and such other facts as have a bearing upon the health, efficiency, character and training of children."

That is a pretty comprehensive program. The reason why we want so comprehensive a program enacted into law is in order that somewhere there may be a co-ordination of the various lines of activity that are now being put forth on behalf of childhood. We feel that the child labor movement alone is a one-sided movement; that it must be brought into direct relation to the efforts and the work that is being done in so many other departments of activity for the benefit of children if it is to reach the greatest possible efficiency.

The watchwords, or keynotes, of this program for a Children's Bureau are the following: Investigation, information, interpretation of facts. This investigation, this collection of information, this interpretation, must be scientific, must be impartial, must be thorough. As a private organization supported by voluntary contributions, we have had to carry on investigation, to gather information, to interpret the facts that we have found in connection with child labor; but at best the information we gather is always open to the suspicion that it is the information gathered by interested parties. They tell us we are looking for child labor, we are looking for the evils of child labor. We are not interpreting these facts with that absolute impartiality and scientific attitude of mind that is necessary in order to carry authority with it.

I will not stop to argue that question. The records of this Committee are printed in several volumes. The results of our field investigations are subject to the examination and criticism of the world at large, and I am perfectly satisfied for one to stand on our platform and to submit that that investigation has been thorough and impartial and fair, and has gone as far as the means and resources at our command would allow. But I submit this further question to you, and to the public at large: Is it fair that a private society like the National Child Labor Committee should have placed upon it the burden of the expenditure of nearly \$100,000 which we have expended in the five years of our organization—is it fair that the burden should be placed upon us to gather this information

when it is clearly a duty of the Government to furnish information for its citizens? Is it not fair that such efforts as are being put forth by private committees like this Committee, like all the other agencies that are working for social betterment, shall have their resources to use for carrying out their program? There is no other Government in the civilized world that does not furnish more information on these subjects upon demand than the Government of the United States. It is absolutely impossible to verify with any degree of certainty the various statements that are made here by these speakers with respect to so simple a matter as the number of children of a particular age at work. We could spend the entire time of this conference in controversy over the question of whether there are 1,750,000 or 2,000,000 children under sixteen years of age at work, because the figures of the United States census are not conclusive upon that subject; because such data as we have in the census have not been worked up by any body of experts, whose chief business it is to correlate, verify, amplify and interpret such information as we already have at hand.

I think it was pointed out in several of the speeches last night that the significant thing to be expected of such a Bureau would be exactly what has happened in every other country that has gathered the statistics that we want; that with investigation and with information collected we are bound to develop a better policy with respect to childhood. We have developed here in the last few years a corporation policy in our Government which is now pretty well understood by our politicians and statesmen, by the organs of public opinion in all quarters, and why? Very largely, as a direct result of the organization and establishment of the Department of Commerce and Labor and of the Bureau of Corporations in that department, a Bureau that has made it its business to co-ordinate all the information that the Government possesses on the subject of corporations, and to go out gathering facts with respect to our great industrial corporations.

As a result of the gathering of that information there has necessarily grown up a government policy based upon the idea of publicity in corporate business.

I do not believe, for one, that our program is going to make very great progress,—our program for the restriction of child labor in certain sections where it is most needed—if we rely merely upon

the compulsion of law. That will always bring opposition, it will always create opposition and resistance, but we can rely upon the compulsion of publicity, and I think one of the very best signs of the times is a growing sensitiveness in those sections of the country through which our good friend Doctor McKelway travels so frequently, to the conditions of life brought out by the facts with respect to child labor. Once let those facts be put out in a manner that is beyond the suspicion of any interested motives, once let them be brought forward with the authority of government investigation back of them, the facts that we positively know are true with respect to child labor, and nine-tenths of the battle against child labor will be won.

I think that in this national conference there has been no more significant result to be observed than the coming together of people of many diverse opinions and representing widely divergent interests and geographical areas, in hearty favor of a Federal Children's Bureau. I have watched the different speakers coming from different states, from different surroundings, representing different ideas, even with respect to this one topic which has brought us together, and I find how they have all come around to one point as we face the problem, as we go further into the work that we have set ourselves to do, that we have increasingly a common need for information, and we feel increasingly our own helplessness as a private society with any resources that this organization can command to get that necessary information, and we feel that this is a paramount duty of our Federal Government.

I, for one, have been an ardent advocate of federal legislation, and I am still an ardent advocate of federal legislation as a necessary part of a really effective legislative remedy for the evils of child labor. All my colleagues do not agree with me on this subject. Personally I do not think that we will get at the heart of the forces that defeat in operation so much of our state legislation on this subject until we have that uniformity that can come only through some sort of supplementary federal legislation. But I am perfectly willing to hold that as an individual view and to tolerate a wide divergence of views on the part of others who do not think as I do on that subject.

I am very sure that however we may disagree as to the wisdom or as to the constitutionality, if you please, of our Federal Govern-

ment passing a law directly or indirectly to regulate child labor, we can have no doubt and I have yet to hear a single expression of doubt from any quarter as to the wisdom, as to the propriety, and as to the constitutionality of the Federal Government collecting information and disseminating an intelligent interpretation of it to aid and support those efforts which the citizens of this great and rich nation are willing to put forth on behalf of its children. The resources of private philanthropy and private charity are spent generously for the benefit of the children of the nation. Let us hasten the day when the nation shall do its full part in this matter, perhaps the only part it can do, by spreading abroad an educational influence with respect to this subject that will make child labor an impossibility throughout the length and breadth of our land.

SOME UNSETTLED QUESTIONS ABOUT CHILD LABOR

BY OWEN R. LOVEJOY,

General Secretary, National Child Labor Committee, New York City.

The four years of study and legislative work conducted by the National Child Labor Committee should give us a basis in experience for a clear definition of the problem of child labor in America. The complicated nature of the work was probably understood from the first by those actively interested in the formation of the Committee, but it was not understood by the public in general. Nor is there to-day any general consensus on many of the essential features of its solution.

There is a widespread idea that the evil briefly called "child labor" is an iniquitous system existing as an integer and perpetuated solely by the cruelty and greed of the slave-driving employer. To correct this error is a first duty. The effort to abolish the evils of child labor is complicated by the wide variety of industries in which children engage; by the marked contrasts in opportunity in different sections of the country; by the influx of alien races bringing their traditions and customs wholly foreign to the ideals of democracy; and by the inequalities in legislative restriction which render enforcement almost impossible, so long as our fifty commonwealths adhere to as many different laws on the subject.

It has been the aim in planning the discussions at this Conference to record the points on which essential agreement has been reached and to give special consideration to that horde of difficult questions that remain unanswered. We are to tell each other what points have been reached. We must bring to each other the questions we cannot answer. If any general principles have been fully established, all citizens should have the benefit of the experience of those who solved them. If it is discovered that at any point we have turned in an unwise direction, that error should be pointed out clearly, and our whole train of activities should be set on the right track.

It is the purpose of this paper to review a few of the typical questions that have not been solved, as an introduction to the discussions that are to follow. Perhaps the questions requiring

most immediate attention may be divided for convenience as follows:—

- (1) What classes of children should be entirely eliminated as a factor in the industrial problem?
- (2) From what industries should all children be eliminated?
- (3) What regulations should govern the conditions of the children who may wisely be employed?
- (4) What is to be done with those excluded from industry?

I. What Children to be Eliminated

Obviously there is a period in the life of the child which, both for the good of the child and for the good of society, must be kept free from exacting toil or burdensome responsibility. How shall the end of that period be marked? The method thus far applied has been through the establishment of a minimum age limit. That age limit has advanced steadily from eight and nine years until to-day it is generally agreed that, in this country, no child under fourteen years can wisely be subjected to wage-earning labor.

Not that all our states have advanced to this standard, for South Carolina, Alabama, Maryland, Florida, Georgia, Mississippi, Texas, and West Virginia permit children of twelve years to be legally employed, and North Carolina fixes thirteen years as the limit. Furthermore, in a number of these states if a child is poor or otherwise handicapped he is turned at even an earlier age to the hard battle for life. But the interested citizens in those parts of the country make an apology for permitting this early exploitation of the child, and are seeking to raise their commonwealths to the higher standard. This fourteen-year limit, however, does not express the standard agreed upon. Beyond this the prevailing demand requires that the fourteen-year-old child shall meet certain educational and physical tests before being subjected to industrial competition. In Colorado, Michigan, Nebraska, Vermont, and Wisconsin he must pass at least the eighth grade before being released under sixteen from school, and in New Jersey he must pass all the grammar grades, and his fifteenth birthday before he can be excused from school. In New York, Ohio and Montana he is required to pass the eighth grade.

In a number of states efforts are being made to add careful physical tests, to be made frequently during the school course and upon entering industry. Especial emphasis is at present being put on the

physical qualifications of the working child. Manifestly the under-developed child, the child lacking in sight, hearing, lung development, muscular growth, bone formation, or heart action should not be abandoned by the state to the rigors of an industrial life merely because he has reached the age of fourteen years. There are those who take the position that the age test should be abandoned and there should be substituted educational and physical qualifications. One of the papers at this Conference will seek to show the possibilities of making anatomical and physiological tests, by which the development of the child can be gauged with scientific accuracy, and thus the actual physical age be recorded. The difficulty of applying this method in small communities and in parts of the country devoid of skillful medical practitioners will at once appear. It would seem that the medical profession should everywhere be counted on to give the child that need of protection which is due. Yet it is notorious that in many cities the local boards of health perform in a merely perfunctory manner, or entirely neglect to perform their duties in relation to the certification of children seeking employment.

Despite these objections we welcome this proffered aid to the solution of one of the most perplexing phases in this problem. And we believe the movement among physicians marks the beginning of a more rational and scientific treatment of the whole subject. Such tests would, from the outset, have immense educational value. Let the people be convinced that the child is not a little man or woman, but a being in the process of physical formation—with features of that development so delicate that no less caution is required at the age of ten or twelve years than was required in infancy—and a speedy end will be reached of all the popular fallacies about the benefits of hard and exacting labor in the training of the little child. Such tests as are foretold in these experiments present an encouraging prospect. Meanwhile there will be a period of experimentation and civil war among the experts. During the period if we must continue to “fumble” we must insist that, while we work by confessedly unscientific methods, the child shall be given the benefit of the doubt.

For the encouragement of those who have fought to establish the laws that now protect the children in many states it may be noted that thus far the findings of the physicians and anatomists

tend to justify the rough line of demarcation that has been drawn at fourteen years and to urge the adoption of still higher restrictions. Upon this point, then, we are clear in our duty to attack every part of the country which compels younger children to be wage earners.

At a recent child-labor conference in Connecticut a leading manufacturer of New England frankly proposed a sixteen-year limit for all children in wage-earning industries. This gratifying proposition is meeting with popular favor. The Governor of Connecticut has advocated this in his message to the legislature, and a bill may be presented to thus amend the law. Such a step in Connecticut would provide a new basis for legislation in other states.

II. From What Industries Should All Children Be Excluded

Upon this question there is a ground of general agreement with a wide margin of doubt. We may agree that all mines and quarries; all mills in which, as yet, no successful method of guarding dangerous machinery has been applied; all factories in which dangerous acids, chemicals, or high explosives are used should be positively shut against the child. But just what are the kinds of industry referred to? In a few states a partial list of industries regarded as dangerous has been made, but nowhere, we believe, with completeness. Neither can there be until every state shall establish, as New York has this year done, a sanitary department of factory inspection and shall have that department so perfectly equipped that a report may be made to the state of all forms of industry that offer menace to life, limb, or health and in which the measure of risk in each may be tabulated upon their record or if they have no record, upon their reputation elsewhere.

Such inspection will doubtless add to the list of hazardous employments, many now looked upon as safe places for working children. They will note the special aptitude of the little child to get into danger or harm in places that are entirely safe for the adult—from the mere fact of immature judgment, recklessness and curiosity.

The labor required about a coal mine is obviously dangerous, and we are not surprised to learn from the last available statistics upon this point from the anthracite mines of Pennsylvania that among the slate pickers the ratio of accidents to boys sixteen

and under is 300 per cent. higher than to the men and boys above sixteen in that branch of the industry.

Ordinary industries of our states are not, as a whole, exceptionally dangerous. Yet the report of the Factory Inspector of Indiana for 1907 shows 400 per cent. of accidents to children as compared with the adults, and the report from Michigan in 1907 shows 1100 per cent. of hazard to children—in proportion to the number employed. What is the record of the whole country? Are children being sacrificed by industry twice as rapidly, or three times, or four times, or eleven times, or what is the percentage of risk to the working child? And what are the industries in which these accidents most frequently occur? We believe no state wants to mangle or kill its little children in industry. We sin in ignorance. But we have no right longer to be ignorant. Our industries are well enough developed and cause and effect are sufficiently well known to make ignorance inexcusable; and we spend enough money in public administration on far less important matters to leave no excuse for neglecting this safeguard to the public health.

Such a Federal Children's Bureau as we are urging would have, as an essential part of its field of labor, to discover and compile for public information, all the facts that can be gleaned from the whole country bearing on industrial accidents to children. A few well-compiled reports, we venture to predict, would put an end to the discussion. For the present, however, in default of any more complete basis of agreement, we may reasonably urge that, if fourteen years is to be made the minimum age for general employment, sixteen years shall be laid as the minimum for employment in all industries that are known to be dangerous in the ordinary sense, and eighteen years in the extra-hazardous occupations. This higher age limit should also, of course, apply to all industries in which there is a menace to the moral life.

III. Regulations Governing Employment of Children and Youth

Assuming that many children on reaching the age of fourteen years, or its equivalent in mental and physical development, may be employed, also that, for those employed there are certain industries which are not excluded as being extra hazardous or dangerous, we have to consider regulations governing the work of children

between fourteen years and maturity who are employed in occupations that are not dangerous. Shall we consent that, because the child and the industry meet certain tests, all protective care on the part of the state shall be removed? Shall it be lawful for a boy who could not be employed legally last week to enter a factory or workshop for an unlimited number of hours, day or night, simply because he has attained a given birthday?

On some of these questions we ought soon to arrive at a fair consensus of opinion. We may differ as to whether the opening and closing hours in a factory should be five, six, seven, or eight o'clock, but there should no longer be any doubt as to whether a young boy or girl, just passed the age of fourteen, may work a ten-hour day as in New Jersey and Indiana and all the New England states, or eleven hours as in Alabama, or twelve hours as in North Carolina, Pennsylvania and Georgia, or an unlimited period as in West Virginia, Kansas, Oklahoma, Wyoming, and Nevada.

Here is a plain question on which neither the interests of the industry, the poverty of the family, nor any other motive should lead us to compromise. No child can study for a ten-hour day without serious injury; nor play for ten hours or more without harm. How much less reasonable to suppose that a child of tender years and with bones but partly formed and muscles undeveloped may be put to the single task of earning profits for its employer, or bread for its progenitors, for a ten or eleven or twelve hour day, without suffering an injury for which society must pay heavily in the future!

It is gratifying to record that already Ohio, Illinois, Nebraska, New York, and Colorado have fixed an eight-hour day for children under sixteen years (the law in New York applying to factories, with a nine-hour day in mercantile establishments, and Ohio extending the eight-hour protection in the case of girls to eighteen years). No evidence is on record, either from the reports of the Factory Inspectors, the School authorities, the compilers of labor and industrial statistics, or from the operators of the industries affected or the families of the children concerned, to show that any serious interruption to business has been suffered, or that poverty and family dependence have increased. On the other hand, these reports, official and unofficial, tend to show that some industries have adopted the eight-hour schedule, while others have been en-

couraged to advance to higher levels, because of the elimination of those who could not profitably be employed for a shorter period than the normal working day, and the consequent substitution of older and more competent employees. As to the families affected, the reports from state and local committees to be presented at this conference will show that the dread of causing sick fathers and widowed mothers to starve because little children are forbidden to be crushed under excessive industrial burdens is a needless dread. Poverty has rather tended to decrease and family standards have tended to advance toward the line of self-support as a result of these humane measures.

In the light of this experience shall we not agree that we have a plain duty to press upon the people of the states adjoining those mentioned, namely: Indiana, Michigan, Wisconsin, Iowa, New Jersey, Pennsylvania and Connecticut, as well as a number of the younger western states—the need of throwing this special form of protection about those who are on the border line between childhood and youth. Shall we not urge them to establish an eight-hour day for all children under sixteen years in all wage-earning employments?

The necessity of gradual approach to this reasonable standard is recognized, therefore we shall count it a gain, if in Pennsylvania this year a ten-hour day can be secured for children of fourteen or if in North Carolina the hours per week can be reduced from sixty-six to sixty.

Night Work

The same conclusions are potent as against all industrial employment at night. It may be granted that certain forms of industry can be carried on more profitably when operated day and night and that no legislation should be enacted which will cripple them in their night operations. But when the welfare of a child or youth of eleven or thirteen or fifteen years is involved, argument should be at an end. If the child cannot find a place in the industry without being subjected to the obvious injuries of night work, then let him be excluded altogether.

The chief opposition to such restriction will continue to come from those engaged in the glass manufacturing industry. Night work of children is practiced in other industries, especially in certain

textile industries, but not as a recognized essential feature of the industry. No cotton mill or silk mill has proclaimed its inability to exist without the systematic employment of little children at night. Yet the glass industry, a branch of manufacturing that has made as great progress as any other in this country in the past quarter-century, under the influence of an exceedingly high protective tariff, stoutly claims that the prohibition of night employment of little boys will be its ruin. The cry usually takes the form of a threat to move the factories to some other state.

Three states in which glass is extensively produced have enacted laws forbidding the night employment of children under sixteen years. These are New York, Ohio and Illinois. These states stand, according to the Census report of 1905, as fourth, fifth and seventh in the scale of glass-producing states.

To determine whether these restrictive laws appear to have injured the industry we refer to the record of its growth since their enactment, and compare it with the growth in states not affording children this protection. The table of comparison given with New York, Ohio and Illinois, on the one hand, and Indiana, New Jersey and Pennsylvania, on the other, presents a valid reply to those who contend that such child-labor laws will ruin the trade.

GROWTH OF THE GLASS INDUSTRY IN FIVE YEARS (1900-1905)

	Increase	Factories	Capital	Wage Earners	Value of output
These States <i>Prohibit</i> Child Labor at night	Illinois.	116. %	63. %	44. %	98.8%
	New York.	3.9%	54. %	23.3%	55.2%
	Ohio.	32.1%	69. %	72.5%	98.5%
These States <i>Permit</i> Child Labor at night	Indiana.	¹ 10.2%	8.6%	17.5%	3.4%
	New Jersey.	15. %	16. %	2.3%	26.8%
	Pennsylvania.	2.5%	43.5%	7. %	25.7%

This comparison is not presented here for the purpose of showing that child-labor laws promote the industry, although they appear to afford such evidence. There are other far more important factors

¹ Decrease

determining the progress of this industry than the question of the age or hours of boys who are employed. The cost of fuel, the accessibility to some of the chief constituents in the composition of glass, and good markets are factors far more important, and are those on which an equality of opportunity for different sections of the country can never be realized.

The chief glass-producing states which at present permit the employment of children under sixteen years at night are New Jersey, Pennsylvania, Indiana, West Virginia, Maryland, Missouri and Kansas. In Indiana, West Virginia, Pennsylvania and New Jersey bills are before the legislatures this winter forbidding such employment. Were it possible to combine the forces working for such legislation in these four states, we believe the glass manufacturers would be less opposed and might consider favorably such simultaneous action.

Vacation Permits

Among the specific questions that are to receive consideration here is the question: "What shall be done in the case of school children who apply for permits to work during the long vacations?" On this matter there is the greatest confusion of opinions and programs. In the discussion, which we hope will bring about a degree of harmony in action, we suggest that in the case of vacation permits the injury to the child is not so much from the work he does, although too little attention has been given to the right of the child to a period of relaxation from the overwork often required in our schools, but what makes the summer work a menace to the child's development is the difference between what he does in the summer and what he will have to do in school in the fall. The proverbial reluctance among working children to return to school ought to be a clear suggestion to our communities as to what the school should be. The fact that people are now so perplexed about what to do with the children prevented from work either in vacation or at all times constitutes the strongest possible argument for co-operation with the National Education Association and those associations formed to promote practical education, to the end that a constructive program shall be worked out without delay.

Street Trades

The various street trades and work in city tenements are forms of child employment sorely in need of study and regulation. The physical difficulty in regulating the hours and conditions of employment in street trades is greater than in the case of factories and mines. It is further complicated by the traditions which teach that the little newsboy or messenger of eight or ten years is the only support of his widowed mother, and furthermore, that the little man is on the straight road to the White House or the presidency of some billion dollar trust. We stupidly adhere to these delusions, overlooking the sacrifice of health, education and character, which in the overwhelming majority of instances are suffered by infant newsboys and night messengers, while we have kept the mind fixed on the few notable men who rose to eminence from a childhood in these nomadic pursuits.

Sweatshops

In the matter of tenement-house employment the question of regulation is further complicated by the tradition of parental ownership. We are asked, "How dare the state invade the sacred inclosure of a man's own home and deny his right to the help of his own children, who work under the home roof?" The question sounds conclusive, but it is wholly specious. Its answer is in two parts. In the first place, the place invaded is not a "sacred inclosure." The tenement house workshops in our great cities are not under home roofs, but in crowded blocks of congested humanity, where hundreds of our nation's little children are burning out their eyes at night as they work in the dim gas light on some monotonous task which develops neither mind nor body. For this labor the only rewards are shamefully inadequate wages, bent and diseased spines, stooped shoulders, contracted lungs—the culture beds of deadly germs, and the other natural fruits of wrong physical environment. In the second place, the child is not a parental asset. The state is bound by the law of self-preservation to deny a father or mother the privilege of exacting from his own child what would be regarded as cruel or injurious if exacted from another's child. If the parent, either through poverty, vice or ignorance is unable to provide the care and protection needed, then the state is bound to enter and become the parent of that child.

Farm Labor

A kind of child labor which has received too little attention in this country is to be discussed at this conference. It has generally been assumed that if children work on the farm there can be no objection to their employment. Indeed, one of the most prominent critics of the work of this committee in questioning our representations as to the extent of child labor in America with one sweep brushed aside all the children working on farms as wholly beyond the need of attention.

Naturally the factory and mine have received the first attention, for there the children are congregated, and if evils exist they are more apparent. But disturbing reports are coming to us from many parts of the country, testifying to the neglect or the abuse of childhood in the rural districts. We learn of the twelve-hour workday in the berry fields of New Jersey; of the congestion, overwork, and immorality in the vegetable gardens of Delaware and Maryland, where the pickers' shanty repeats the unhealthy evils of the city tenement; of the beet-sugar fields of Michigan, Nebraska and Colorado, and the tobacco fields and stripping barns in Connecticut, Kentucky, Virginia and Pennsylvania.

Reports reach us from many parts of the country which produce tobacco in large quantities that not only are the children kept from school during the harvesting season, but that through the winter, whenever the weather is favorable for stripping tobacco, they are kept from school one, two and three days a week, and thus their education is interrupted and the whole school system demoralized.

In the fruit-canning sections of New York state, eighteen months ago, a thorough investigation of child labor was made, which revealed such abuse of little children that the canners hiding behind a technicality in the agreement with those directing the investigation insisted that they suppress the publication of the report, lest its publication ruin the industry. Canners in the states not investigated would, it was claimed, use this report against their New York competitors, although the same abuses are believed to exist in nearly every section of the country where canning is extensive.

IV. *Constructive Measures*

But manifestly legislation that eliminates the child or the industry is not enough. There is the constructive side. As to the industry, perhaps we need not concern ourselves. It is enough to know that no necessary form of industry has ever been permanently crippled by excluding the children from it. Inventive genius has always come to the rescue of the industry and has found a way to apply better methods or better machinery, which in the end has put the industry on a higher plane and rendered better service than the child had ever done.

At a time when all over the country so large an army of unemployed men exists as a burden upon the charitable agencies of our communities and as a menace to individual virtue and the foundations of the home, there can certainly be no justification for the contention that manufacturing industries would be crippled by the elimination of young children. Indeed, there is a double motive for the release of young children from industry. Not only are the children benefited by having a substantial addition made to their period of preparation for the obligations of maturity, but the normal demands of our industries would inevitably draw into service large numbers of able-bodied men who are now idle.

But the problem of what to do with the child is less simple. The question arises as soon as a child is thrown out of employment by a new law, "What are you going to do with him?" And no one seems to know. At least there is no agreement upon the point. A mother in Washington a few days ago charged the child-labor law of the District of Columbia with making her son a forger. The newspaper story does not bear the marks of authenticity, but it serves to illustrate the feeling of a large number of people throughout the country. The point of view of those who would leave all children to work indefinitely until society has fully prepared to take care of them, loses some of its force when it is remembered that the same opposition to the law is found in Ohio, where boys under sixteen and girls under eighteen have been thrown out of employments which could not use them on an eight-hour day, and in Alabama and Arkansas, where children of eleven years are thrown out because they were not fortunate enough to have a widowed mother or a crippled father.

None the less, the question is a vital one, and calls for careful study. It is easy to say, "Give the child a practical education and thus fit him for a useful industrial life." But where? In many states the only place a child can get a practical education is in a reform school.

In default of such opportunity for a practical education the schools are yearly leaking a large percentage of those who enter the early grades. Less than thirteen per cent. of all enrolled pupils were reported as above the fifth grade in the last United States Educational Report. It is obvious that those who leave school at ages varying from eight to thirteen years of age are wholly unprepared for the industrial battle of life. Even children who remain in school to the end of the compulsory period in some of the more advanced states are totally unfit to enter industry. The following sentences from the unpublished manuscript of the forthcoming report of the New Jersey Commission on Industrial Education are significant: "Fully ninety-five per cent of the pupils leave school between the ages of fourteen and seventeen, and without having formed any idea as to what trade or vocation they should follow; in consequence they drift into occupations rather than select those which might be most nearly suited to their aptitudes, and their progress is generally arrested at an early age, because of the restricted character of their experience and the failure to receive supplementary instruction."

Much interest attaches to the experiments that are being tried in a number of communities, in making a closer alliance between the school and the manufacturing and commercial enterprises. It is argued that by such an arrangement children may have an introduction to the practical phases of industrial life without interfering with their school work. In our discussion of this project we should not overlook the necessity of a radical revision in the school curriculum. The demands for book learning in many of our city schools at present lay upon the pupils a burden of home work, which not only robs childhood of its rightful recreation, but is a menace to the health and a chief motive in the child to end the school career. It would be necessary also radically to change the processes in the industries under consideration if they are to have any value for the child. If he is to be placed in a factory to do the monotonous tasks now required of the unskilled workers, he might, it is true,

earlier become self-supporting, but his industrial efficiency would be thwarted rather than promoted.

The proper equipment for industrial education in the schools of our country would, in relation to this problem of Child Labor, accomplish two very desirable results:

(1) A far larger percentage of pupils would remain in school to or beyond the termination of the compulsory period, thus vastly simplifying the work of factory inspectors and truant officers. It is well enough to talk of the error of catering to the whim of the child, nevertheless, until the American school house becomes a place to be sought by the children of our communities, instead of shunned, we shall continue to witness the suicide of the higher school grades, the sacrifice of children in our factories and mines, or their almost equally disastrous exposure to the perils of idleness.

(2) We should be able, as we are not at present, to place the young child improperly equipped, in an environment certain to meet his immediate need of training and certain to produce for his family the material rewards which were their chief motive in having him employed.

We are fortunate in having at this Conference a paper by Dr. Draper, who has led the campaign in New York state for such a revision of the public school program, and the results of these discussions may reasonably be expected to clear up many difficult points, and indicate how such a committee can best co-operate with the Association for the Promotion of Industrial Education, the newly organized National League for Industrial Education, and other forces working for an adaptation of educational methods to the needs of an industrial civilization.

Our four-fold duty, therefore, seems clear:—(1) To exclude all young children and all undeveloped children from the burdens of wage-earning industries; (2) to forbid the employment of all children and youth in industries which menace life, health or morals; (3) to limit the hours, forbid the night employment, and otherwise guard the conditions of those children and youth who may be employed, and (4) to aid in those constructive measures which aim to revise the curriculum and equip the facilities of the public schools to meet the recognized needs of an industrial civilization.

THE CHILD AND THE LAW

BY A. J. MCKELWAY,

Secretary for the Southern States, National Child Labor Committee.

While my theme is "The Child and the Law," the subject uppermost in my mind is the child who is unprotected by law or is exploited in violation of law. My theme is rather, "Lawlessness in Its Effect Upon the Child," and I use the word lawlessness as meaning either a low standard of legislation, or legislation that is so defective as to encourage evasion of the law, or its violation, and particularly that spirit of lawlessness that scorns concealment and is open and shameless in its workings. It is these symptoms of a widespread evil that I shall attempt to discuss, their disastrous effect upon the child, and perhaps the effect of the appeal of childhood for protection.

I once attended with some newspaper friends an old-time negro camp meeting in North Carolina. During the exercises—rightly so called—a collection was taken, one of the officials waiting upon the white people and another upon the colored people. The latter reported the result thus: "I have to thank the colored people for three dollars and sixty-seven cents." The other report began: "I have to thank the white people for six dollars and——" "Don't tell it," said the preacher, with a gesture of protest. "When the white people beat the colored people, don't tell it."

I confess to some sympathy with the sentiment of pride that prompted the colored preacher to protect his own people from a disagreeable comparison. I am the more embarrassed since my paper is a report from the field of work assigned to me, the Southern States, and I am to make this report within the borders of a state that has reached, in my judgment, the highest standard of legislation for the protection of the children that has been attained by any American state, and is most conspicuous for its effective enforcement of the law and the punishment of transgressors. Yet when I think of the children whose fate is involved, I am resolved to tell the truth, as I see it. For the

knowledge of the facts must precede the proper treatment of any evil. Moreover, in the recital of these facts and in the earnest protest against lawlessness, as regards the welfare of the children, I am not speaking of the South as a whole, but of a part of it only. I beg leave to make the broad distinction between the great majority of the Southern people, whose traditions of humanity and kind-heartedness are proverbial; whose willingness to sacrifice all material interests for the sake of a principle won the admiration of the world—to distinguish between the South and what is sometimes called The New South. The Old South was commercial; the New South has become commercialized. The people of the South who call themselves The New South have made the term unpopular among our people, and they are sometimes called The Mercenaries.

The most familiar illustration among us of the sentiments of the Mercenaries is that of the ship, loaded with an equal weight of gold and babies, floundering in the seas and demanding lightening. We say that the Mercenaries would cry, "Overboard with the babies and save the gold." The South would say, "Let the gold go to the bottom, and the Mercenaries, too, but save the babies." For, in spite of all that may be said and that may be here said, the South loves her children. She has a great many of them to love. The population of Massachusetts exceeds the population of Georgia by 600,000. But the children of school age in Georgia exceed in number the children of school age in Massachusetts by 100,000.

It is no longer an open question in this nation whether law is needed for the protection of the children against the exploiters of their labor. It is perhaps a disgrace to our civilization that there is such need, but it would be a worse disgrace if the facts were not recognized and the need met. To the employer who creates the demand for child labor, to the ignorant or unnatural parent who would supply that demand, the law says, "Thou shalt not."

In such restriction of child labor the common judgment of both America and Europe has reached the conclusion that fourteen years is the limit below which children should not be employed for gain, save in work on the farm in the interval between school sessions. It is also virtually agreed that there should

be regulation by law for children under sixteen, at least, such regulation including the prohibition of night work, the shortening of the hours of labor by day and the protection of the children against dangerous machinery and against unsanitary and immoral conditions, which the children, naturally, are helpless to remedy. It is also virtually agreed, in the experience of the nations of Europe and the American states, that along with the prohibition of labor for children should go the compulsion to attend school. Experience has also taught that a child-labor law is a "law without a friend" for its enforcement. Employers, parents, and in some instances the children themselves are opposed to its enforcement. The private citizen who attempts to investigate the evil may himself be convicted of trespass upon private property. Therefore, the absolute necessity of official factory and mine inspection, with power to investigate and with power to prosecute the violators of the law. In the light of this substantial agreement among civilized states and nations as to the standard of legislation and the methods of law enforcement, let us see in a brief survey of the field how far the Southern States have advanced toward this standard. It should be remembered in this connection that practically all advance has been within the last five years.

Kentucky, Tennessee, Louisiana and Arkansas have already reached the fourteen-year age limit, though Arkansas permits children between the ages of twelve and fourteen, who are orphans or the children of dependent parents, to be employed—a vicious exception, of course, to the general law. Virginia reaches the thirteen-year age limit in 1909 and the fourteen-year age limit in 1910. North Carolina has fixed the thirteen-year age limit, and a bill has been introduced into the North Carolina legislature, now in session, changing the age limit to fourteen. South Carolina, Florida, Georgia, Alabama, Mississippi and Texas have a twelve-year age limit. Georgia permits children between ten and twelve to be employed, and South Carolina children of any age who are already handicapped by partial or complete orphanage. Texas has an age limit of sixteen for mines, and Oklahoma the same, though the child-labor bill proper, after having passed the legislature of Oklahoma, was vetoed by Governor Haskell (for which action, it may be remembered, he was Presidentially rebuked). These laws of the Southern

States apply generally to child labor in factories only, the evil being comparatively small as yet in mines and except in a few of the larger cities, in mercantile establishments and in the street trades.

In regard to the hours of labor for the children who are allowed to work, the ten-hour day generally prevails, though in Alabama and Tennessee it is a sixty-hour week, which allows, as in Pennsylvania, more than a ten-hour day, and in Georgia and North Carolina a sixty-six-hour week, which, with the usual half-holiday on Saturday given to employees in the cotton mills, means a twelve-hour day for the other days of the week. Night work is prohibited for children under sixteen in Alabama and Mississippi; in South Carolina and Florida, for children under twelve, and in the other Southern states for children under fourteen. As to compulsory attendance upon school, Kentucky and Oklahoma have a compulsory law for children under fourteen; Virginia for children under twelve; North Carolina has a sort of local option compulsory attendance law, which was enthusiastically advocated by the cotton manufacturers, who, at last accounts, have unanimously neglected to put their own villages under the operation of the law. The manufacturers of South Carolina this month agreed to advocate a compulsory education bill for children under fourteen, which is an advance of two years over their previous concession, and to agree to the same age limit for the child-labor law if the compulsory education bill shall pass, experience having demonstrated that this is a tolerably safe condition for amending the child-labor statute. Georgia, Alabama, Arkansas and Texas have an age limit of fourteen for illiterate children, while Alabama requires children employed to attend school three months a year until they are sixteen, and Georgia until they are eighteen.

So much for the standard of legislation to which the Southern States have attained. The legislatures of several of these states are in session now or are to meet during the year, and I trust that this review of the legislative status will become antiquated before it is printed. Perhaps it may be said that the advance from no legislation at all to the present standard in the last six years has been more rapid than any similar advance in either America or Europe, for a similarly large population. But when we come to consider the enforcement of the law by the authorities or its observance by

those affected, we may as well begin with the frank admission that there is almost no enforcement and that the violations, even of the poorest laws we have, are open, shameless and innumerable. Except in Kentucky and Louisiana there have been no prosecutions for violation of the law so far as I have been able to learn.

The opportunities for nominal compliance with the law on the part of the employer, while violating its spirit, are abundant, and for this the manufacturers are responsible through the compromises they have been able to write in the laws. Only Kentucky and Louisiana have anything like a fair system for issuing the certificates of employment. In the other states the affidavit of the parent made before a magistrate who may himself be in the employ of the factory is deemed sufficient to insure accuracy. In North Carolina only the written statement of the parent is required; in South Carolina the certificate relates only to children under twelve. Florida and Texas require no proof of age. Virginia in her lately amended law, however, instead of the cumbersome and generally ineffective certificate system, which is usually simply a means of protection to the employer, added this short and sharp provision, that the employment of children under the legal age should be deemed *prima facie* evidence of guilt on the part of both employer and parent. That is at least a great deal better than the immunity bath in the laws of North and South Carolina, recently slipped into the Alabama law, that the employer must "knowingly and wilfully" violate its provisions as to employing children under the legal age. It is difficult to know certainly the age of other people's children, and where ignorance is immunity, 'tis folly to be wise.

In the Carolinas, especially in South Carolina, where it is easy enough to employ the smallest children in accordance with law, a child is not deemed employed when "helping" an older member of the family at piece-work, so long as the child's name does not appear on the payroll and he does not receive the wages himself. Of course, the difference of the effect of premature toil upon the child, himself, through the absence of his name from the payroll, is obvious! Before the passage of the child-labor law in Georgia, the manufacturers who had entered into an agreement not to employ children under specified ages, suborned their own consciences by a similar expedient. The remedy for this is the provision that the child shall not be permitted to work in or about the place

of employment. As to the certificates required by law, they are almost wholly disregarded, their protection not even being deemed necessary by the employers.

Again, except in Kentucky and Louisiana, there is no adequate provision for factory inspection. Alabama has an inspector and an assistant, who are "inspectors of jails and factories." Thus far the inspector's office has been unable to cope with the task of factory inspection. Tennessee and Virginia have the beginnings of a system of factory inspection, and Mississippi requires the sheriff of each county and an officer of the board of health of each county to inspect the factories located within the county, the sheriff being required to visit the factories once each month. This may prove of temporary value in a rural state with few factories. The North Carolina Labor Commissioner has no authority to enter a factory, and the commissioner whose term has expired made a regular report that he had no complaints as to the violations of the law. As in the case of the death of the unpopular neighbor, there was no complaint. Everybody concerned was satisfied.

In addition, North Carolina, South Carolina, Georgia, Florida, Arkansas and Texas have no officials for investigating the facts as to the employment of children, and only the ordinary processes of the law for the enforcement of the child-labor law. Under these conditions, a low standard of legislation, numerous loopholes in the laws that we have, the general absence of factory inspection, and of compulsory education, the great ally of child-labor legislation, together with an urgent demand for labor in the cotton factories, it would only be natural if the violations of the law were scandalous in their frequency.

I am able to prove this by ocular demonstration, through the medium of the stereopticon or the photograph, to any one not physically or morally blind. During the year 1908 investigations directed from our Southern office in Atlanta were made in Mississippi, Alabama, Georgia, North and South Carolina and Virginia. The Virginia manufacturers seemed more sensitive to public opinion, and while violations even of the twelve-year age limit then in force were frequent, few children were found at work who were under ten years of age. Through the operation of the provisions requiring children under eighteen in Georgia, and under sixteen in Alabama, to attend school, there was some show of observance of the law in

these two states. Mississippi had no child-labor law at the time of the investigation, and from the most careful comparison of the reports of three different investigators in North Carolina and South Carolina, two of them making photographic records, I am convinced that the conditions, while bad enough in Mississippi, were no worse, there, in a state without law, than in North Carolina, with a thirteen-year age limit, and that they were worse in South Carolina than in either state or in any state of the Union for that matter, except that North Carolina occupies the chief eminence for the employment of children at night, and during a working night of twelve hours.

Many words could not make this plainer. Children from seven years old upward were found at work in the mills; children of ten years of age were found on the night shift. Children of twelve and thirteen, now beyond the protection of the law, had been working in spite of its supposed protection since they were six or seven. This is child labor from one point of view. It is child murder from another point of view. How the very respectable gentlemen who engage in it, or the philanthropic stockholders who permit it, can hope to escape the execration of mankind when the facts are known is beyond comprehension. The Herods have not been popular in the judgment of history.

Another bad result of this lawlessness on the part of the employer is the example for the child of disobedience to law and the practice of deception. While in the great majority of mill villages the amazing thing was the unconsciousness of wrong-doing, of actual criminality, on the part of the mill superintendents, and the readiness of the children and their parents to tell the truth about their ages, in some mills, where conditions were just as bad, the children had been trained to lie. In some of the mills the investigators were forbidden to take photographs on the premises or even to enter the mills. And the practice has already begun in the South of preparing a mill for investigation, when a visit is expected, by hiding the children or sending them away from the mill. The effect of all this upon the childish mind need not be described.

But with the people of the South, lawlessness finally works out its own cure. The very openness and boldness of it finally brings its destruction. The old Ku-Klux-Klan, which through lawlessness saved civilization, finally degenerated in its operations to the avenging of personal injuries, and, presto! it vanished from the face of

the earth. The night riders had their own way in Tennessee until the horrible murder which shocked the country was perpetrated, and night riding will soon be abolished by way of the hempen cord. The lynching of negro brutes has long been condoned as a necessity—is still so condoned in some quarters. But all over the South, beginning in Georgia after the Atlanta riots, law and order leagues are being formed, whose members undertake to denounce the crime of lynching, wherever it occurs, and to aid in the apprehension and prosecution of the offenders. So it will be, I am persuaded, with the reign of lawlessness throughout the South to-day in the matter of the destruction of the lives and the health and the opportunities for usefulness and happiness of its thousands of little children. If I could put our photographs into every Southern home, if what I have said could reach the masses of our people, I know, because I know them, that the response would be swift. If the cotton mill owners themselves would realize the terrible effects of the child-labor system, which they are doing the most to perpetuate in this nation to-day, especially in the South, the most of them would begin housecleaning to-night, or to-morrow morning at the latest.

And in conclusion, I wish to sound again the warning to them that I made two years ago. Already they have lost the moral enthusiasm of a good part of the Southern people that accompanied the tremendous advance of the cotton mill industry, before the facts about child labor began to be known. Already people all over the South are saying that they do not want a cotton mill in their own towns, already investors who have some conscience about their dividends are looking to see if cotton mill money is not blood money. But the cotton mill men are now asking the representatives of the people, in Congress assembled, for the continuation of the high duties on cotton goods, and even for higher duties than now obtain. A gentleman from New England explained to the Tariff Commission, the other day, that the cotton mill was an infant industry, that it was an infant industry in New England, because that section had recently changed from the manufacture of coarse goods to the manufacture of fine goods. That it was an infant industry in the South, because it had only in recent years begun to make cotton goods at all. The same sentiment, that it is an infant industry, was echoed by a Southern cotton manufacturer at a meeting in Charleston, giving the same reasons. I desire to agree with the proposition, as

I interpret it, that the cotton mill business is an infant industry. I am backed up in this opinion by the Census reports, which say: "To a greater extent than any other mechanical or manufacturing industry, the cotton mill furnishes employment for children." And it goes on to show that one employee of the Northern cotton mills out of ten is under sixteen years of age, while in the South one out of three employees is a child, and that the proportion of young children employed is also greater in the South than in the North, instances being given in the Census of child breadwinners as young as five years of age. There were a thousand recorded in 1900 who were under ten. We cordially agree that the cotton mill business is an "infant industry".

Now, in all seriousness, these representatives of the cotton mill interests come to the people of this nation, through their representatives in Congress, and ask for protection and for more protection against their foreign competitors. There would be a universal howl from them if the tariff laws were so violated or evaded as that protection should be denied them. Is it not in order for the people, through their representatives, to say to the cotton mill men: "Your industry is too much of an infant industry to suit our ideas of common humanity. We are not debating the question whether we are willing to pay the same tax or a higher tax upon the cotton goods we purchase, in order to give you protection. But what we demand is that you give some protection to the thousands upon thousands of children who are now employed in the cotton mills of the East and of the South; that you, who are the only obstacle in the way of child-labor reform in the cotton manufacturing states, should cease your opposition and change it to advocacy. You are organized into your associations, and you can easily act together. The legislatures that will deal with this matter are now in session, or soon will be. Let us see what the state legislatures will do before the tariff bill is finally framed by Congress. More than this, since a tariff law, once being passed, is of no value to you without the mighty machinery of the Government at the Customs-House to enforce it, see that you who are demanding protective legislation, enforced by Government, shall give the same obedience to law that you demand of the foreign manufacturer, or the domestic importer, and that you protect these children of ours, both from the enactment of defective laws

and from the violations of such laws as you have. Come with clean hands, asking from us this benefit. Demanding from us protection for infant industries, see that you cease the exploitation of infant industry, and that you grant what you have so long denied, protection to the children who toil in your mills."

CHILD LABOR IN THE TEXTILE INDUSTRIES AND CANNERIES OF NEW ENGLAND

BY EVERETT W. LORD,
Secretary for New England

Ever since the first cotton mill was established in New England, a little more than a century ago, the textile industries have rapidly increased, and in the textile mills, which to-day are found in large numbers in every New England state, a large proportion of the operatives are young people. Probably in every factory town at least seventy-five per cent. of the children leave school as soon as they reach their fourteenth birthday, and almost one hundred per cent. of those who leave at this time go to work in the mills. That some escape from school before they are fourteen and enroll themselves among the workers is undoubtedly true, but the number probably is not great. The problem of child labor in the textile mills of New England does not primarily deal with very young children. It is true that during the past year a boy nine years of age was found working in a Vermont woolen mill, and that a considerable number of children under the legal age have been found from time to time in mills in Maine, New Hampshire and Rhode Island. These, however, are sporadic instances and cannot be considered as characteristic of the industry.

Most manufacturers desire to comply with the law. They neither want children under fourteen in their mills nor do they wish to become law-breakers. The few who have little respect for the law are likely to be deterred from employing children because of almost certain detection and consequent punishment. The children who get into the mills under the age of fourteen do so usually through misrepresenting their age. In Maine, for instance, the law has required only that the employer demand of the child a certificate of some sort. It may be a copy of the town clerk's record, or a baptismal record, or a passport, and some employers have occasionally accepted certificates of doubtful authenticity.

When a child presents a paper covered with Syrian or Hebrew characters and assures the mill superintendent that the paper is his

birth certificate, showing that he is over fourteen years of age, the superintendent may perhaps be excused if he relies largely upon the child's statement. In some cases, however, certificates obviously false have been accepted by employers, who have thus appeared to conform with the letter of the law, but have shown little regard for its intent. In other states the officials who have to pass upon the age of children have sometimes been similarly deceived, so that we have come to recognize as one of the most evident defects in our laws the method of proving the age of children. Until we can determine some other standard than that of years there will certainly be children of foreign birth considerably under the legal age at work in our mills and factories. A high educational test is likely to work hardship upon those children who come to this country at somewhat advanced age and who can hardly be expected to acquire in a year or two the English education demanded of children born on this side of the water. Perhaps some definite physical test, which shall show that the child is physically able to perform the work of the mill, without strict regard to the age in years, may be found to be the most satisfactory solution of this problem.

The vital problem connected with the employment of children and young people in the New England textile mills is probably not the physical one. Beginning their work when at least fourteen years of age, working in mills and factories, where the hygienic conditions are usually fairly good, and fortified by the invigorating climate of New England, it is not probable that a large proportion of even the younger operatives suffer greatly in respect to their health. It is true that those who have a predisposition to tuberculosis may develop it sooner under the conditions which prevail in the factory; similarly those who are particularly disposed to any disease may sooner suffer from its effects if they are deprived of the advantages of outdoor life and exercise. It does not appear, however, from a comparison of the young workers in factories with children of the same age in our public schools that the factory workers suffer more than do the school children.

The young factory workers do suffer, however, from woeful lack of education, and the evils consequent. Leaving the schools at fourteen, they take but little of the school training with them, and that little they are not likely to apply. Less than sixty per cent. of the children have completed the work of the grammar

grades when they leave school. They have completed no course of study—they have only been in contact with some elements of culture, and have usually failed to absorb much from their contact. Like the college boy whose mother said that “he had not taken trigonometry, but had been exposed to it,” they have been exposed to a little elementary academic culture, but few, indeed, have taken any of it with them when they have left the school.

Even more serious than their slight academic education is their total lack of industrial training, for though most of the young workers rank considerably above the grade of illiterates, practically none of them have had any form of hand training or of the mental training which accompanies practical hand-work. This lack is felt keenly by many progressive employers, and in some of the mills of New England the employers are, at their own expense, providing industrial technical training for some of their young employees. The fact that in their mills the directive positions are practically all filled by men of foreign birth and education, indicates somewhat the need for immediate industrial training of the young workers. In these factories where the opportunity is being given to some of the young employees to continue their education the success of the experiment has been most encouraging. While the expense and the problems of supervision and direction are likely to deter many manufacturers from undertaking anything of the sort, it may be that the increased value of the workman and consequent greater return promised for the future will tend to make instruction of this sort more general. If children must be allowed to go to work at as early an age as fourteen, the state should still retain some hold upon them for a part of their time, requiring and aiding them to continue their education along industrial and some carefully correlated academic lines, until they reach the age of seventeen.

Investigations show that the children who enter textile mills remain in that industry, though they may and often do shift from mill to mill and from town to town. The work which is done in the mills is all of about the same grade and offers little to the adult wage earner; yet there seems to be no way out, and the workers continue their unskilled way, earning at thirty but little more than they did at fifteen and seeing before them a prospect of continually decreasing returns for their labors. The young workers are by no means altogether from the poorest homes. Many of them have par-

ents who are in very comfortable circumstances and who could well afford to maintain their children until they had acquired a more complete education. Dissatisfaction with the school, a dissatisfaction to some extent justifiable, added to lack of foresight and parental ignorance or indifference accounts for the presence of the vast majority of the children in the mills. They gain neither in efficiency nor in earning power, but they have closed behind them the door to progress in other lines of employment which offer a fair living wage, and have associated themselves with the least enterprising class of our population. The state cannot remain indifferent to the needs of this large body of young people who have in them the making of good citizens, but whose citizenship is too often spoiled in the making.

The one industry in New England in which children are practically without legal protection is the canning industry in Maine. By an unfortunate exemption the law relating to child labor is made inapplicable to any manufacturing establishment the materials and products of which are perishable. It does not seem to have been considered by the legislators who established this standard that the children who were working in the canneries were also perishable. Surely it was not intended to rate children as cheaper than fish, for it is especially to the canning of fish that this law applied, yet that seems a logical deduction to draw.

Along the eastern coast of Maine there has grown up a great industry in competition with the sardine packers of France and southern Europe. The herring, which are found in great numbers along the coast, when properly prepared and canned, serve as a fairly passable substitute for sardines, and go into the market under that name. Years ago I visited a canning factory in which there were packed three different products, French sardines, brook trout, and mackerel, all of them being known as herring before they were canned. The fish are gathered in seines and weirs, and are taken in motor boats to the nearest factories. As soon as a load of fish is received at the factory the herring are taken out, cut to the required size, and placed upon flakes for drying and cooking. The cutting and flaking is commonly done by women and children. The fish must be cut and cleaned as soon as they are delivered at the canneries. This may be in the early morning, or at any time during the day or evening, or even late at night. When a boat arrives, the

cannery whistle blows for cutters, and whether they are at play in the streets or asleep in their beds matters not, the call must be obeyed, and the children go in troops to the shop. If work begins late in the day it may last until late at night, and in consequence it is not uncommon to see children of eight or ten years of age returning home from their work at midnight, perhaps to be called out again in the gray of the early dawn.

The operation of flaking is simple, and the children's deft fingers often can do more than can adults'. The flaked fish are taken to the ovens, where they are cooked in steam; then they are packed in the cans, a part of the work done entirely by women and children. The oil or mustard, or whatever flavor is to be given to the fish, is then placed in the cans, and they are passed through the topping machine, which is usually operated by a man and one or two boys. None of the work is particularly exhausting, and the rooms are usually open to the air. At the same time, the operatives frequently work long hours, as it is customary to can all the fish which may be at hand before stopping. In the busy seasons the factories sometimes run fifteen or sixteen hours at a stretch, and women and children remain as long as the factory is open. The surroundings, especially in the cutting room, are likely to be disgustingly dirty, but they are perhaps not unhealthful. The chief menace to the health lies in the irregularity of work and corresponding irregularity of home life.

It is impossible to say how many children are working in these canneries, but as a conservative estimate I should say that during the busy season not less than a thousand children under fourteen years of age are so employed. There are a good many children as young as eight or nine who work in the flaking rooms. These little ones do not always remain throughout the entire day, but as they are paid by the piece some of them stay until they have earned enough to satisfy them for the day, and then go to their homes. Others, either because of their own desire or because they may be required to remain, work as long as the fish last. I have found one child of only five working in the packing room, usually employed as long as the other workers, and earning from eight to twelve cents per day.

In many of the sardine factories much machinery is used; the law does not require the safeguarding of this machinery as it does

in other factories, and a child worker has to take upon himself "the risks of his employment". If he is injured, the employer is not liable for damages. In one instance, recently reported, a girl, only nine years of age, lost her hand while playing about a drier. No damages could be recovered; the girl was supposed to know that the machine was dangerous, and had no business to be playing near it.

Sardine canning is a seasonal industry, and this is urged by some as extenuation for the employment of children. They say the children are engaged only during vacation seasons, and so are not necessarily deprived of school facilities. The season, however, lasts from April 15 to December 15, leaving only four months of the year when the children are free from the call of the factory. As a matter of fact, I believe that this seasonal employment is one of the worst features of the business, involving as it does a long period of idleness, and setting before the children the example of their elders, who quite commonly rely upon their season's work for their entire support. Spending the winter months in idleness and dissipation, the parents are not likely to insist upon sending their children to school during these free months, and the children are certain to acquire ways of irregularity which are fatal to worthy industrial habits.

The moral atmosphere of the sardine factory is far from wholesome. Washington County, in which nearly all the canneries are located, is reported to have had more juvenile criminals in its courts during the past twenty years than any other county in Maine, and probably seventy-five per cent. of these young criminals have been sardine workers. Few of them are native born; indeed, few of them have permanent residence in the county or the state. The industry attracts a low grade of workers from a wide section, many coming from Canada. This makes the problem much more difficult for the local town authorities; their schools are not prepared to receive great numbers of children from other localities, and so the truant officers seldom visit the factory camp. The old residents look upon the factory workers with a good deal of contempt, and feel unwilling to interfere in their behalf. The churches find the problem so hopeless that they have largely abandoned it, and until the state extends its protection there seems little prospect for improving the present evil conditions.

CHILD LABOR IN THE OHIO VALLEY STATES

BY E. N. CLOPPER,

Secretary for the Ohio Valley States, National Child Labor Committee.

Arguing from their very wide acceptance, we may conclude that compulsory education and the regulation of child labor are factors in the progress of the state. These two factors bear directly upon the family, and as the rearing of families is unquestionably another factor in progress we have a situation in which two elements affect another element, compelling on the one hand and restraining on the other.

Such compulsion and restraint are matters of no concern to families in comfortable circumstances, as their provisions are easily complied with. But no law designed to do the greatest good to the greatest number has ever been enacted that did not work hardship upon a few. Compulsory education and the regulation of child labor affect adversely the immediate interests of some poverty-stricken families, and for this reason some states blindly and illogically exempt the children of such families from the operation of the law. It seems not to have occurred to these states that their poor boys and girls are the very ones who, of all children, need most such care and protection. As a matter of simple justice, compulsory and restrictive laws should be supplemented by other measures which provide for such cases of hardship as they occasion. In other words, the various factors in progress should be made to operate harmoniously. Such provision is made by the state of Ohio.

This state directs its boards of education, upon recommendation of truant officers, to furnish text books free of charge to children of compulsory school age whose earnings are needed to support either themselves or others dependent upon them, and also to furnish the families of such children with such additional relief as may be necessary to enable the children to continue in school until they are legally qualified to go to work. The money for such relief is paid out of the contingent funds of each school district, and the law contains a statement to the effect that no child shall be

considered or declared a pauper by reason of his acceptance of such aid.

Here is a practical and satisfactory way of making the operation of compulsory education and child labor laws justifiable and harmonious in their bearing upon poverty-stricken families. In Cincinnati the Board of Education has made arrangements with the local Associated Charities to have all cases reported by truant officers investigated by the trained social workers of that organization. Relief will be afforded only when recommended by them. Many statesmen and students of sociology claim that this is paternalism. Perhaps it is, but when one considers the hope this provision holds out to the unfortunate children of the state, it seems more like maternalism.

Wherever the enactment of laws further to restrict child labor is under consideration, there is invariably raised the objection that such restriction would work harm to the poor and bring increased hardship to the widows and orphans. To a limited extent this is undoubtedly true, but the suffering is far less extensive than popularly supposed, and such cases are the exception rather than the rule. Restrictive legislation in the early stages of its enforcement is practically sure to work hardship to a few individuals, but the fact that, all things being equal, the condition of these same individuals will ultimately improve, should not be overlooked. Moreover, the introduction of labor-saving machinery into any factory is always attended by a reduction in the number of operatives, yet no intelligent person advances this as an argument against the use of such machinery. Neither should child labor legislation be opposed because of the temporary suffering it entails upon a few.

It is frequently urged in West Virginia that child labor in and about the mining village of Monongah is justifiable because of the terrible disaster that occurred there in December, 1907. As a result of the explosion in the coal mines 359 employees were killed, and the opponents of child labor restriction still point to that grief-stricken village, and claim that the widows must have the earnings of their little children in order to live. The population of this village is less than 2000, and in such a small community the sudden death of 359 wage-earners naturally resulted in a very distressing situation. However, it is interesting to know that only three children were made full orphans by the disaster, and that through the

work of the official relief committee and other benevolent organizations in aiding the sufferers to care for themselves, there was in December, 1908, one year after the explosion, not a single child in Monongah under the age of fourteen years whose earnings were needed either to support himself or to supplement the family income.

The law in Ohio, though excellent in many respects, affords no protection whatever to children engaged in street trades. Little boys and girls are allowed to sell newspapers, fruits, baskets, chewing-gum, and any other merchandise in the streets and public places of every town and city in the state without any restriction. This freedom from all restraint is particularly objectionable in cities, as children there are subjected to exposure and hardships and too frequently come under the influence of people who have no regard for their welfare. Children are forced by their parents to sell goods in the markets both before and after school hours, and during half the night, while on Saturdays they cry their wares from early morning until midnight, and neither the state nor the municipality has so far attempted to protect them. Little newsboys also may work from early morning until late at night, as there is no restriction that applies to them. In cities having newspapers between which there is keen rivalry as to circulation, the newsboys lead a miserable life. The men employed to distribute newspapers to the boys are often chosen because of their brutal aggressiveness, and the little fellows at best get but rough treatment at their hands. If the state does not include in the child labor law some provision defining the age under which children shall not engage in the various street trades, the individuals and societies in every community interested in the welfare of children can at least put forth an effort to improve their local situation by urging the passage of a municipal ordinance.

Ohio has a well-organized force of thirty-four factory inspectors, who are charged with the enforcement of the child labor law in addition to their other duties. This force includes eight women, whose duty is to inspect the conditions under which women and children work. In the other states of the Ohio Valley district the situation is not nearly so good. In Indiana the child labor law is far behind the laws of other progressive states, and there are only six officials in the Department of Factory Inspection charged with its enforcement. In West Virginia the compulsory education law is excellent, but the child labor law has two different age limits, each

applying to different localities at different seasons of the year. There is no prohibition of night work, no educational requirement, no limitation as to work hours, and no requirement as to proof of age. Moreover, there is only one official whose duty it is to enforce the laws relating to child labor, the employment of women, sanitation, and the use of devices for the protection of employees from dangerous machinery. This official is expected also to direct the affairs of his office in Wheeling, and to conduct a free employment bureau!

The situation in Kentucky is peculiar, and can best be illustrated by the statement of a farmer who resides in the blue-grass region of the state. This man realizes the gravity of the child labor situation in his vicinity, and knows that some action must be taken. Several years ago he sold a little corner of his farm to a man who is sober and hard-working, and who has been trying his best to pay for his nine-hundred-dollar home. He has cultivated the land for five or six years, and during this time has been assisted by three little boys who have been working in the fields in the summer, cultivating the crop and picking worms from the tobacco plants, and in the barns in the winter, handling the gathered leaves. Formerly these boys attended school in September and October, but for several years past the work on the farm has been such that they have not been in school at all. With all this child labor the man has been unable to pay \$500 on his home in five years, and within the past few months he was obliged to borrow \$100.

This same farmer related another instance in which his tenant worked his little girls in the fields during the late summer and autumn terms of the district school. His landlord learned of this, and purchased books for the children, and they were sent to school, but in a few days they were found again at work in the field. When the father was questioned about the matter he said that men demanded \$1.50 per day as wages for field labor, and as he could not pay so much his children must work or he would lose money.

This Kentuckian stated also that some time ago he had a tenant with a wife and five children. The youngest child was an infant, and was daily laid upon a quilt in a fence corner while the rest of the family worked in the field eating merely a cold lunch at noon. This man never sent a child to school, and at the end of the year, after having sold his crop, he still owed his landlord \$67 more than the crop sold for. This in the blue-grass region of Kentucky!

These instances can be multiplied indefinitely, and the most casual investigation will show hundreds of wives and children working daily in the fields or in the barns, according to the season, accumulating nothing, and barely making a living.

A visitor in the great tobacco factories of Kentucky finds there boys and girls working as "hangers" and "pluggers", performing simple labor and receiving little pay. The nimble fingers of children accomplish more in a given time at these simple tasks than can men or women, yet these little workers receive less wages than men would at the same labor. Child labor is profitable from a temporary business point of view, and so the evil grows. A boy works ten hours a day, taking the hands of tobacco out of the hogsheads and hanging them upon sticks, which are then put into the drying machine, or in fastening the company's trademark on the plugs of tobacco. This work does not fit him for anything else, and when he becomes old enough to demand higher wages his place is taken by some other boy, and he has to begin again at the bottom at some other kind of work. All this time he is being deprived of the benefits of education.

Illiteracy can never be stamped out until these conditions are removed. There is living in the best agricultural part of the state an American family composed of nineteen members, not one of whom can read or write, or even sign his name. In the country Sunday schools it is a pitiable sight to see the little children joining in the hymns quite lustily, and then vanishing away when the lesson books are opened, because they cannot read and are ashamed to have anyone see how ignorant they are. There are underlying causes for all the ills of which Kentucky has reason to complain, and the situation can be improved only after the people have awakened and realize their moral responsibility.

An aroused intelligent public opinion is the only thing that can remedy the situation in Kentucky, as elsewhere. This alone proves that the public school plays the most important part in improving conditions. The public school educates the masses, and it is the intelligent public opinion of the masses that not only regulates the government, but makes the country a fit place to live in. In this connection it is very discouraging to read in an editorial published recently in the organ of an important industry in this country, the statement that, as no boy could live on a knowledge of reading,

writing and arithmetic, and as one man might be very learned and yet not decent enough to behave himself, while another man might be absolutely illiterate and still be a model husband and father, the paper opposed education for working people, and, if it could, would remove every educational requirement from the statute books. When anyone asked for employment it would only look at his teeth and examine his stomach! It is almost incredible that an American citizen in this enlightened day and age, and in this progressive country of ours, could put into cold print such an absurd, reactionary statement. It smacks more of the Dark Ages than of the twentieth century.

This same mistake of denying to the working people the benefits of education is what brought Spain down from her position as the proudest nation of all, to that of one of the least among the communities of the world. A few hundred years ago Spain ruled over the greatest empire in the history of the world, and it was this same denial of the right of education to her common people that brought on all the disasters which have shorn her of her power and brought her down to humiliation and defeat. There can be no enlightened public opinion without public education, and without enlightened public opinion a nation cannot prosper. Child labor and education do not go hand in hand. The one works against the other.

Someone has said, "Show me your companions and I will tell you what you are." So it may be said of wages, "Tell me the amount of the family's income, and I will describe the condition of its members." Child labor will not increase the family's income, neither can it improve its condition. Its benefits are short-lived, its ill effects are lasting. The family is the recognized unit of our civilization. Whatever attacks the integrity of the family undermines our civilization and impels our whole social structure to its fall. There are many agencies that weaken the influence of the home and break the "tie that binds," and of these the premature employment of children ranks among the most effective. The child's spirit of independence normally reaches its full development upon the arrival of the child at years of discretion, and then the time is ripe for him to withdraw from the shelter and protection his parents afford and to take his place in the great scheme of society, supported by the ideals that home life has instilled into his soul and strength-

ened by the discipline and training that were his in childhood and in youth. But if this spirit is developed at too early an age, as is the case when a child becomes a wage-earner, his respect for parental authority is lessened, the relationship between parent and child is thereby weakened, and the disintegration of the home begins. Delinquency among juveniles and idleness and pauperism among adults are the outcome in large measure of child labor. To the truth of this claim judges, probation officers, superintendents of reformatory institutions and social workers of every kind will abundantly subscribe.

Prosperity in any locality can exist only when the amount of wealth produced there exceeds the amount consumed. So the individual laborer increases the wealth and prosperity of his country according to the amount by which the wealth created by him exceeds his consumption of the same. An unskilled laborer cannot create more wealth than he consumes, and as child labor is essentially unskilled labor, the employment of children in gainful occupations is a menace to prosperity. But allow the children to become fully developed, provide for their proper education and training while young, and when they enter the field of labor properly equipped in body and in mind, they become a real factor in the making of prosperity and society realizes bountifully on its investment. Inasmuch as we add to the power of a child, he becomes an asset; inasmuch as we take away from his power he becomes a liability.

PRACTICAL RESTRICTIONS ON CHILD LABOR IN TEXTILE INDUSTRIES; HIGHER EDUCATIONAL AND PHYSICAL QUALIFICATIONS

BY HOWELL CHENEY,
Cheney Silk Mills, South Manchester, Conn.

As a rule the textile industries, both north and south, have been advertised as among the worst offenders against the children, and I suppose that it is on this account that your secretary has asked me to explain the attitude of a textile industry which has found that it could do without the labor of children, at least until they were fifteen years old.

At the start, I must explain that my experience has been confined to but one branch of the textile trade, namely, silk manufacturing. The conditions surrounding this industry have, however, given me exceptional opportunities to study the problem, not alone from the mill standpoint, but from the standpoint of the school.

The firm by which I am employed has roughly some 3,600 hands. The plant is situated at some distance from a city, and, in a community of approximately 13,000 inhabitants, is the principal industry. Most of the employees in the mill live within one school district, which has 1,800 children enumerated. As a member of the Board of Education, it has been my duty for four years to pass upon the certificates of children leaving school to go to work, and also for the last two years I have inspected the applications of persons under sixteen years of age applying for work, to see that they had conformed to the state laws and school regulations, and to the firm's rule that they would employ no children under fifteen years of age. As a great majority of the children attended one school and went to work, if at all, for one firm, it has been possible as in few other places to watch the workings of a rule forbidding the employment of children for a year more than the law required, and of a school board ruling that no child should leave to go to work who had not completed the sixth grade. This ruling was possible but not customary under the Connecticut law, the fourth grade being usually considered sufficient to earn a certificate.

Therefore, neither the school nor the mill had a compelling law behind it, but the fact gave a much greater opportunity to study the exceptions, because they all had to be answered reasonably rather than legally.

Of course, every just exception which led to giving work to a child made it more difficult to keep others out. I must say frankly at the start that there was some opposition among some of the heads of departments to excluding these children. But in all those departments where the work requires *consecutive labor demanding concentration, attention and care*, there is now a unanimity of opinion that a textile industry can do better without than with children, until they are at least fifteen years of age. The boy or girl of sixteen will actually give in work at least half an hour a day more than the average younger child; will do at least five per cent more work, hour for hour, with an appreciable less amount of waste of material and damage to finished product. The work will require less supervision, and will be of a higher grade when finished. The savings secured to the employer by the older child as an offset to the fifteen per cent higher wage can be better measured by experience than by statistics, which are noticeable only by their absence. But wherever the work to be done is continuous for nine or ten hours, and requires attention as long as the machinery runs, our experience would say emphatically that the increased production by the older child, of goods of a higher grade, at a lower cost of supervision and all other overhead charges, is cheaper than the production of the fourteen year old child at a lower wage. Two factors have been constantly at work in the silk industry to bring about a changed condition in respect to child labor.

1. We are constantly raising the standard of our goods, and hence the workmanship. A plain black grosgrain for which my firm made a name forty years ago, would not be a marketable piece of goods now. Every process requires more exact handling than it did then.

2. The great strides in improved machines have not been made without a nearly proportionate increase in the capital invested, and hence it is increasingly necessary to secure the maximum production of machinery to pay a fair return on capital. Twenty years ago an investment of \$1000 per loom would have been considered ample to build and equip a mill of one hundred silk ribbon looms,

where to-day \$2000 a loom would be necessary to place your plant on a plane of efficiency equal to the most up-to-date mills. Consider, therefore, how much more necessary it is to watch the product of a machine and its operator per day and hour. When you couple these conditions with a raw material worth from three dollars to seven dollars per pound, and in which a careless hand can spoil more in an hour than he can earn in a week, he is either a very poor silk manufacturer, or a manufacturer of very poor goods, who persuades himself that there is any economy in child labor as far as silk throwing, dyeing, winding, warping, quilling, weaving or finishing goes.

The processes already described include all those in silk manufacturing in which *the work is continuous and demands more or less constant attention as long as the machinery runs*. In these there is no economy in the employment of children, at least until they are fifteen years of age.

In the above I have stated as fully as possible the economic reasons only which lead me to believe that child labor is not at all essential to the silk textile industries. In all frankness I must also present to you the difficulties which manufacturers must overcome in doing away with this class of labor. I believe your agitation would make more rapid headway and obtain the co-operation of the more enlightened manufacturers, if it would concern itself with the making of these difficulties less where principles are not sacrificed, rather than by accentuating them by prohibitive legislation. There are distinct lines on which you can co-operate with the manufacturer, and I am sure he will meet you halfway in them.

Discrimination Needed

The first of these leads to a group of employments in which *the work is intermittent* and requires the attention of the employee for perhaps not more than two-thirds or one-half of the time. This covers a variety of jobs which in the total would not employ a large number of hands, such as "doffers" or children who replace the full spools on a spinning frame with empty ones; bobbin boys, who keep the various operators of machines supplied with spools and deliver the full ones to the next process; booth tenders, who in weaving rooms hand out the full filling boards to the weavers and refill the empty ones; and a small number of errand boys and

girls. In all of these cases the work is intermittent, *i. e.*, allows for periods of rest, and in none of them are children engaged in the operation of *running* machinery. This group of employments is much more important to the cotton industries than to the silk. It is possible to define it, as above, in legislation on the subject; and the employment is not injurious to the children where it is safeguarded by registration with factory inspectors for all children over fourteen years of age so employed, and permits issued only after inspection of the conditions and hours under which they work. It represents a group of employments which constitute a peculiar problem to the manufacturer, and in them centers an economic opposition to further restrictions on this class of labor.

This kind of employment illustrates a point I wish to emphasize. I believe that your agitation does not always take account either of the things which children can do in a mill with less chances of injury than they encounter on the streets and in work at home, or of the perplexities which the manufacturer encounters, both as a maker of goods and an employer of labor. With him it is not alone a question of economies in particular jobs, important as these are, but of maintaining a scale of wages fairly adjusted to the skill required and amount of work done. If he pays a girl one dollar and twenty-five cents to put empty spools on in place of full ones, and then to rest for half an hour, when a girl at seventy-five cents can do it just as well, he not only increases his cost in a small item, but invites a condition of dissatisfaction with all of the other one dollar and twenty-five cent help in his mill.

It is one of the difficult problems in manufacturing to make a wage scale fairly proportioned to a wide range of abilities, and one's capacity for fair dealing is measured largely by one's success in this respect. The manufacturer has often given unselfish thought and anxiety to the problems which you are agitating, and can work with an intelligence born of actual experience, which is not possible for you on the outside of a mill to approach. It may be a truism to say that if you devoted more time to his difficulties you would encounter his opposition less.

His next most serious difficulty is in meeting your demand for an eight-hour day for laborers between fourteen and sixteen years of age. As long as the machinery runs in his mills there must be operatives to tend them, and these operatives must have

their assistants, doffers, bobbin boys and booth tenders. If their labor is essential, it is just as essential from four to six as it was in the earlier hours. In the proposal of a fifty-five hour week for such employees he would more readily meet you, because by shifts it is easier to arrange the work to meet a deficiency one afternoon in a week than for a shorter portion of every afternoon. He would also more readily meet you in the enforcing of more stringent physical and educational standards, which would keep out the physically defective or mentally deficient children to whom the longer hours would prove injurious. I believe such physical and mental standards should be rigidly enforced. But in allying yourself with the eight-hour cry you are weakening your cause to the extent that you are burdening the child-labor issue with a more general economic question.

There is a final difficulty in connection with the restrictions on child labor in which the manufacturer finds you in sympathy with him, namely, in providing a system of industrial training which will produce more efficient labor than our present school system does. I will refer to this matter more fully later.

To summarize my arguments up to this point, I would say—

1. The silk textile industries realize no economy from child labor where the work is continuous, and in these employments economic forces and conditions of production are working out the problem in harmony with the moral campaign to which you have given an impetus.

2. Where the work is not continuous, or not engaged in direct operation of running machinery, and is not paid by the piece, it should be your policy to safeguard the children by restrictions rather than by prohibitions.

3. The organization of a mill cannot lend itself to one set of hours for mature workers and another set for fourteen to sixteen year old hands, and here again restrictions will accomplish your ends without prohibitions.

In brief, prohibition of child labor in the textile industries, wherever the work is continuous and involves the operation of running machinery, is necessary. Restriction is required only where the work is intermittent, or is not done under the strain of the piece-work system, or the worker is not directly engaged in tending machinery.

So far as economy of production goes, as a manufacturer I believe we can do without the labor of children. But ridiculous though the statement may sound to some of you, from an intimate connection with the schooling on a large scale of the children of laboring people, I feel that these children cannot do without the work until a better substitute than the present school is provided. The theoretical proposition "that the worst thing a child can do is to go to work," is no more true than its complement "that the best thing for a child to do until he is sixteen years of age is to go to school."

You too often approach the problem from the theoretical side, and stating the condition under which the normal child can best develop, you assume that there is a choice open to the average child between these conditions on the one hand and work on the other. You infer that he has plenty of nourishing food; that he is working progressively in school; that his hours out of school are given to proper recreation and fresh air, and that his home life protects him from evil influences, while he is undergoing a discipline or training which will prepare him for his future work in the world. You assume that it is a choice between a healthy growth under these conditions and work that is physically injurious, mentally stultifying and morally degrading. Of course, this is a colored picture intended to illustrate a not uncommon attitude.

A Many-Sided Problem

Whoever studies this problem of child labor must soon come into a sense of its many-sidedness. It is only secondarily a problem in economics and primarily one in humanity in general and education in particular, and I believe that its ultimate solution must be found in the schools rather than in the mills.

It may seem somewhat surprising to you, but the manufacturer's point of view, if he be at all progressive, and if his plant has been established long enough for him to appreciate the responsibility it owes to its workers no less than to its stockholders, is not radically divergent from yours. Unless he be blind to everything but his next quarterly dividend, he appreciates far more forcibly than you do that keen minds, active bodies and willing hearts transmitted from the apprentice to the master, or from the child to the man, make directly for steady and devoted helpers, for ingenuity, interest

and efficiency—in brief, for skill and economy. If he is building for his sons, no less than for his own immediate pocket—and many an American father has that habit—he knows more certainly than you can appreciate that fair dealing with his help has no uncertain connection with fair dealing with his customers, in goods made with all the interest, the intelligence and the force which he can command. More than all, he knows, or he has missed the highest possibilities of his business, that nothing else can supply these qualities in his goods or any improvements in mechanical processes make good their absence. Humanity plays no less a part in successful manufacturing than in any of the occupations by which selfish man makes his living.

But if what I have said is true, you will at once challenge my statements by demanding an explanation of the presence of child labor in these trades. Frankly admitting the selfish motives of manufactures, I will endeavor to show the influences which are at work on this problem, and you will please bear in mind that I am speaking of the Northern and Eastern states, where only children who are over fourteen years of age, working not more than sixty hours a week, under some educational qualifications, are employed. I would say that the presence of these children in the factories is due to three causes, whose potency will vary with every locality and in every family.

(1) Belief on the part of the manufacturers that such labor is profitable, either directly or indirectly, in maintaining an average wage scale and as an apprenticeship system.

(2) The desire on the part of the parents, or children, or both, for a larger income.

(3) The failure of the school to advance or interest the average child of over fourteen years of age who is going to work with his hands.

The interests of the manufacturer I have described above, and have endeavored to point out practical ways in which he could co-operate with you. But in reality you have no right to consider his interests except in so far as they are identical with those of the children. Turning to the family and educational side of the question, I will attempt to explain, from a personal observation which is the result of responsibility for a school system in a textile town, the influences which are compelling children to go to work, where

the manufacturer's selfishness is at least restricted. I will leave the conclusion to point its own moral—that the truest safeguards you can erect for the protection of these children are higher educational qualifications which enlist the whole boy and not his mind alone, and which leave every possible opportunity open to the boy who can avail himself of it without injury.

Attitude of Parents

The parents, if they influence the child at all, in more than the average case decide in the interests of a larger family income. In a well-defined class of cases I have found that the worst offenders against the children are their own parents, and it is from them that they need protection. The only protection which will be effective against this particular evil will be the rigid enforcement of educational and physical restrictions. Laws prohibitive as to age will not affect the parents who lie about their children's ages, nor prevent them from altering and forging birth certificates in a way that would be ludicrous if it were not so pitiful.

The percentage of cases of real need in which it is a question between self-support and town aid is small, not over fifteen per cent. In principle as well as practice, self-support, if attainable, is better than town aid or assistance from any public charity which it is now possible to give. Perhaps public school scholarships wisely administered may ultimately solve the difficulty. They are not available now to any extent. But until the condition of actual need is met, you are committing a positive injury in depriving this class of children of their only opportunity to find a way out. In such cases *the school and charity authorities jointly should be given discretionary authority to allow a child of fourteen years to go to work or to be supported at public charge.* But of greater frequency than the cases of extreme need are those in which the influence of the parents, without sufficient necessity, or the loyalty of the child, persuades him to assist in supporting the family. The total of such cases of both kinds is perhaps one-half of the total number of children who leave school to go to work.

That a portion, perhaps large, of this number could actually have done without this assistance, does not seem to me to alter the conclusions that if you forbid the parents to make the children help toward their own support, you must provide an alternative, which

in the long run will make a continued parental sacrifice worth while. That is, you must be able to demonstrate that more schooling will either make their children higher wage earners or will open up to them a higher social position.

The first motive will appeal more powerfully to the struggling families, and to them the school now fails admittedly to provide a training for higher efficiency. The second motive, social position, your school *can* enlist, legitimately in some instances, unwisely and harmfully in a great majority of cases. To any one who is acquainted with our schools the most unnecessary and pathetic failures are where parents are sacrificing their very lives to maintain in a high school a child who has no ability, and cannot even conceive the value of the opportunity offered. Wherever false ideals based on a smattering of many things, imperfectly digested, have grown in place of trained habits of thought, of efficiency and diligence, your school has done an injury which can only be undone by bitter experience afterwards.

Influence of the School

So much for the influence of parents. If they do not compel or strongly advise going to work, what influence does the school have on the child's decision? If he is working progressively, it is fair to assume that he is interested and would like to stay on. If by the time he has reached the age of fourteen he has not passed the sixth grade, which means he has taken eight years to do the work which should have been done in five or six, he must have lost from two to three years either through incapacity or lack of interest. As we are concerned, in this discussion, only with those children who do go to work, we are certainly within the truth in stating that not over a third of those at work can do more than read fluently, write fairly legibly and perform the simpler processes in numbers, including common fractions. The average child who goes to work from the sixth grade, or below, has reached the limit both of his interest and his capacity to absorb what is put before him. If you compel him to stay in school, you may be protecting him from physical and moral injury, but you have done nothing to positively advance him upon his way, or bridge over what you frequently term "the two wasted years." It is possible that a widespread interest in industrial training may in time produce a school which will meet the pressing

requirements, but in the meanwhile are you justified in advancing the age limit two years before you have provided an adequate training for at least one-half of the children affected? It is perfectly true that in the past schools have been provided much more slowly than increases of population demanded.

I know that I am laying myself open to your criticism in suggesting a compromise between the fourteen-year-old standard established in most states of the North and East and your sixteen-year ideal limit. I have heard you describe in scathing terms the manufacturer who seeks to continue his exploitation of child labor by exaggerating the educational shortcomings. But fortunately the facts need no exaggeration to make them sufficiently startling. And so long as not more than a third of your laboring children are advanced beyond the sixth grade when they go to work, it is not a satisfactory solution of the problem to continue them in such a school for two years longer.

The Need in Education

In agreement with Dr. Draper, I believe that the vital need is not so much for a brand-new style of education as for improving and intensifying what we have. I am out of patience with many of the students of industrial training, who have come to the conclusion that a more or less technical training for pupils of high school grade is going to meet a critical condition caused by pupils who are struggling along in the fourth, fifth and sixth grade. No industrial training is adequate unless it can be applied to the earlier grades. Taking these grades and the ideals which govern them, what are the foundations on which we must build?

The ideal most indelibly stamped upon our common schools is that they are to provide a training, admittedly and predominantly cultural, which is to open the door of opportunity to all kinds and conditions of people. Our free American schools are *individual in their purpose and general in their tendencies*, as opposed to the *national ideal* which governs the German schools in the development of *specific trainings best adapted to classes of pupils*. The German literature on the subject which has been so voluminously laid before us recently is most interesting, but it can only tempt us out of our plain course, so far as definite application of it goes. We are not ready to abandon our ideal of a cultural training as the

best highway for an open opportunity, and we could not, if we would, force a separation at the end of our elementary schools between those children who expect to work with their hands and those who expect to work with their heads. The experience of England is no more helpful to us, unless it is an example of how not to work out the part-time system. We can obtain valuable suggestions and inspirations from the foreign systems, but to make real progress against our own difficulties we must keep our feet firmly planted in American traditions. Frankly accepting the fact that we are going to demand a cultural training, which seeks to open one's eyes to a wider world than our own, we must direct it toward efficiency and definiteness.

We must endeavor to get hold of our raw material, to use a manufacturing term, at an earlier age, in the kindergarten if possible, which should have a more definite aim. It should lay the foundations of a larger vocabulary, of a habit of doing for oneself rather than of being done for by a teacher; of simple, but definite, ideas of discipline and effective co-operation; of some degree of concentration and thoroughness, and finally of an elementary power of expression with the hands as well as with the tongue. Then will your kindergarten become a preparation for the primary grades.

In the elementary school no new direction is possible, but in our own case we have been able to secure greater efficiency by smaller subdivisions and more exact grading. Here the classes are flooded with foreigners.

These foreign pupils and all subnormal children must be reached at an earlier age; they must be kept moving and not allowed to stagnate. This can only be done in smaller classes and more specialized work. The question of expense will be urged against all this. For a practical mill man the first principle to be learned is the economy of a high degree of completion of every process in itself. "Yarn well spun is nearly warped and a warp well made is half woven." Do you school men seriously enough consider the extravagance and waste, both of pupils and teachers, in half-taught ideas which have to be gone over and over again, each time with an added danger of confusion and uncertainty? You may not admit any parallel between the production of immaterial ideas or brains and of material things. Yet you must, as teachers, admit the unfairness both to dull and bright pupils of the waste in energy

and time caused by large classes of improperly graded children. Perhaps public parsimony may be slow in recognizing this fact, but the awakening will come more rapidly if you lay your stress on the greater efficiency of what we have.

Much, too, can be accomplished in securing more regular attendance. The practical abolition of truancy by capable truant officers and prosecution of parents; a carefully organized system of medical inspection and efficient nurses who treat in school many minor ailments for which the pupils would otherwise have been out, and an intelligent attention to securing the co-operation of parents, I know, will raise an average attendance of eighty-four per cent to ninety-two per cent. This would make a difference of about a half a year in the time the average child spends in school. In a town of only one industry and one school I recognize that many things are easy of accomplishment, which in a city would be impossible.

Employ only efficient teachers and pay them well. Try to instill a spirit of enthusiasm and vigor, even at a greater expenditure of wages. No motives of consideration justify a waste of children by the retention of teachers who have outlived their usefulness. It is far cheaper to pay a pension. Too great rigidity and conventionality in your systems of promotions make for inefficiency, so far as it insufficiently rewards exceptional ability and encourages a mediocrity just short of the dismissal line.

Through the fifth and sixth grades, where the problems of discipline are most acute, scatter a few men. Here despite all your efforts those pupils who have reached the limit of their ability to profit by cultural training will begin to stagnate. Respect for a man's authority is more than a moral tonic. It is respecting the boy's developing manhood. You cannot hold him by methods which appeal to smaller children. With undeveloped capacities for guidance he feels a man's instincts, which must be honored and satisfied. In no way more legitimately can this be done than by giving him something that he is capable of doing, and through the doing of which under a man's direction he can come into a sense of his own power, and happiness in his own usefulness. Here again your school loses in power, because it has not studied its materials and intensified its processes.

I am conscious that some of you are thinking that I am treat-

ing the problem just as if the children were so many different kinds of silk and the teachers were so many operatives and foremen. But I wish I could make you appreciate how many different kinds of good and bad humanity and saintliness and cussedness can be expressed in a piece of silk. No human being can spend himself upon a piece of work without putting something of his humanity into it. The silk dress which you wear contains some indefinable impression of the old Chinaman who tended the worms and moths more tenderly than many women care for their babies; something of the Japanese children who plucked the mulberry leaves and much of the climate of the particular country which grew those leaves. The Italian girls who reeled the fibers from the cocoons, and the French women who spun the fine strands into coarser threads have added their individuality to the accumulating problem which the Yankee mill takes up. If you think we add nothing further, go from one department to another and observe the spirit and the character of the room as affected both by the character of the foreman and the hands; or better still, go from mill to mill to study the effect of the controlling organization. Think, as you hurry along in confused ignorance, of the art of the designer, the dyer, the printer and mechanic, no less than the skill of the thrower, of the quiller, warper weaver and finisher.

Try to conceive of the brain matter that has gone into the improved machinery—and it is not the great discoveries but the many little improvements that seem so simple you wonder they were ever problems, which make for rapid progress. Do not stand like dummies asking what a machine is doing, only to be told that the product goes in so on this side and comes out so on that; but try to get hold of some part of the human wits that have gone into the development of that particular process. You may not understand the process any better, but you must come into the renewed sense of the culture of work, however mechanical.

Efficiency in the school is directly related to efficiency in the mill. Culture in the mill is the same thing as culture in the school. Whoever puts something of himself into a task is on the way to attain unto culture, and whoever has taken something out of a task and made it his own attainment is cultured to that extent, whether it be in literature or weaving. The problem that is before us is not to discover some mysterious and physiological connection

between the hand and the brain. It is to find means whereby the child can express himself accurately, efficiently, and with a comprehension of what he is doing. Hand work is to many a child the easiest and readiest means of expression. If accuracy and efficiency result from it, by so much will culture, or power to command expression follow. You have in your present feebly-organized manual training most of the equipment necessary. Do not be afraid to use it under the direction of an enthusiastic mechanic and rest assured that the boy will discover its meaning without the aid of philosophy and psychology.

I have taken all the time allotted me to carry you to my point which is that if your grammar schools can attain that degree of efficiency which will have carried boys and girls who expect to work through the sixth grade, then and not till then can you guarantee the preparation which is necessary for a proper industrial school. In brief, stress laid not so much on the things done as on the way in which they are done; on culture as the power to see, think and act in the experience of childhood, rather than on culture as the accumulation of ideas however valuable, will best lay the foundations of the industrial school of the future. And if that industrial school can teach mechanical expression rather than exact trades, it will become an ideal stepping stone to an efficient trade school.

SCHOLARSHIPS FOR WORKING CHILDREN

BY MRS. FLORENCE KELLEY,
Secretary National Consumers' League.

The State of New York established five years ago the requirement that children must finish the work of the fifth grade of the public school or its equivalent, must have working papers *before* they leave school, and must get from the old country (if they come from the old country) documentary proof that they are at least fourteen years old. We do not believe a child's statement, or its parents' or teacher's statement as to its age. It must bring documentary proof from the place where it was born. Besides this children must be fourteen years old according to the school records; must be able by actual examination by a physician of the board of health to read and write simple sentences in the English language and must, in the opinion of an official physician, be of the normal stature of children of their age, in good health, and fit for the work which they say they are about to undertake.

Those children who cannot bring documentary proof of their age have to pass a medical examination, to wait ninety days from the day when they say that they cannot get their documentary evidence—to stay on in school while they try, and the board of health tries, and the principal of the school tries, to get it. There have been enough exceptional cases in which evidence has been obtained from Russia to make it seem always worth trying. Documentary evidence has been obtained from every other nation in Europe, from Turkey, Syria, from most unexpected places, real documentary evidence of the age of children by sending to the proper official and waiting for the reply sometimes about sixty days.

It is required that children must know something before they leave school, not merely that they be fourteen years old, but that they know something. Not even the word of the teacher or the principal that they know something suffices. The children themselves are examined. They must show by the signed statement of the principal and the teacher that they have attended school for five

years and then they must also prove what they know at the board of health office by really reading and writing there.

It was said when the statute requiring that was enacted that there would be bitter hardship. So the experiment was made of providing scholarships. I think we have never spent as much as \$5,000 a year in any one year in a city of four million people. We cannot hope to meet all the need of the children for scholarships by private gifts. I do not think it likely that we shall be able to spend much more than that in the near future because it is not easy to raise increasing amounts of money for the purpose from private charity, and it ought not to be private charity at all.

The one state in this country which faces the situation is Ohio, which also requires that children shall know something and that they shall prove their age; that they shall not work at night; that girls even to the eighteenth birthday shall not work longer than eight hours in a day and not after six o'clock at night. Ohio is more logical than we in New York, and says that since the community reduces very materially the earning power of the children, and of these young girls, it behooves the community, not private charity, to provide for them, and it is obligatory upon the school officials that they shall do that. The county must furnish the money, the school officials must provide books and shoes, and what is needed to keep the children efficiently in school. I am told that in Cincinnati cases of need discovered by the school authorities are investigated by the Charity Organization Society and the need met as stated to exist by that organization.

We are not so civilized in New York. We leave it to charity, and we have for some few years had a maximum of \$5,000 a year, roughly speaking, to spend. The hardship inflicted by this moderate requirement that children should finish the work of the fifth grade of the public schools is much less than was anticipated. It is astonishing how great a number of our school children are nowhere near the starvation line, how the working people do support and feed, and educate, and take care of, and start in life their own children. The candidates for scholarships are chiefly the children of the recently immigrated, who do not get five years of the public schools before they reach their fourteenth birthday, and children who have had illness in the family; perhaps the mother may have been ill and they have stayed at home to help her, or the father has been ill and

they have worked illegally when they should have been in school. There has been irregularity of some kind.

If all our children went to school as they should, if they went to kindergartens which are there, from three to six years of age, and to school from six to fourteen—went regularly and behaved themselves—they ought to be ready to go to work not only from the fifth grade but from the eighth when they are fourteen years old. The conundrum that confronts us incessantly is, Who are these children who are between fourteen and sixteen years old and not yet through the fifth grade?

If they are sub-normal children, of course the question is answered. There are 1,600 children in the classes for the sub-normal in New York City who are being kept in school until they are sixteen years old, because even at sixteen they will not have finished the work of the fifth grade. This is one of the most humane and enlightened things done in New York, that instead of saying "These children are stupid and cannot learn anything, therefore let us send them out to sell papers on the streets or to do simple work", New York says, on the contrary, "Because these children are slow therefore let us give them additional time."

There are occasional applications for other scholarships for children who cannot make the fifth grade, for example, from the huge families, with sickly father and mother and nine children, of whom nobody is earning anything, and the whole nine have yet to go through school. Those present very grave problems to people who wish to furnish scholarships forever from private charity. I believe that Ellis Island might be asked to look far more closely than it has hitherto done at the quality of the breadwinner when there are from five to twelve young children.

Massachusetts asks only that her children shall be able to read enough to enter the fourth grade before they go to work. New York has long asked that they shall finish the fifth. From Mr. Cheney we learn that it is the exception when children of Connecticut are asked to finish the sixth. One state, New Jersey, demands that children shall finish the work of the eighth grade before they go to work. Why have we this multitude who have learned so sadly little, that they have to have scholarships when they are old enough to work but do not know enough?

One useful thing that our scholarships do is to enable us to trace

the child and attach it to the school official who has let it become derelict. We find every degree of non-attendance at school, from the little girl who has been eight years in New York, five years in the same house but never in a school (though her younger brothers and sisters have been going regularly), and the school authorities have never been interested to learn that she existed till she is found illegally at work by the factory inspector and turned over to us at fourteen or fifteen, a candidate for a scholarship. It is a valuable thing to attach that little girl to the truant officer who let that happen. That, perhaps, is one of the most useful things that a committee can do, which is administering private charity in the form of scholarships as distinguished from the public authorities administering in a general way, as the Ohio authorities do, the money required by law for the children.

Surely the weakest point in our whole child labor legislation is the failure of the schools, not only to teach the children that which will be industrially useful to them, but to teach them anything; to keep them in school day by day, week by week, month by month and year by year, until they learn the things which we say in our laws we require them to learn, but which, because of an apparently universal slackness, we do not in any one industrial community really require of all the children or of all the schools.

SOME EFFECTS OF IMPROPER POSTURE IN FACTORY LABOR

BY DR. ALBERT H. FREIBERG,
Cincinnati, Ohio.

I approach any further discussion of the physical aspect of premature toil with a good deal of hesitation. In the first place, because I have discussed that matter before the conference on another occasion, and I have learned but little new since then, which puts me in a rather uncomfortable position. I feel, however, that I am in possession of the same data that I was before, and that they have not been changed, though perhaps my viewpoint has changed somewhat.

In the first place I think we should be careful not to lay too much stress on the physical changes wrought by child labor, because if child labor or premature employment resulted in no physical damage to the child's organism at all, we still should have ample room for absolutely and positively forbidding it. Therefore, we should not, I believe, put ourselves in the position of looking too closely to the matter of physical damage lest it appear that the argument against the employment of children rests upon the physical damage which is done to them. This is certainly not the case.

It seems to me that while the difficulties in the way of ideal conditions which are produced by family dependence and poverty must be recognized, it must also be acknowledged that it is a fatuous policy of the state to permit a minor to sacrifice during his years of possible physical development that which he cannot hope to regain or correct completely in his later years; to sacrifice a material portion of that practical efficiency which would otherwise be his and which he requires to give him that place in life to which he is by nature entitled.

I think that in any discussion of the physical effects of premature employment, it is unnecessary to discuss the effect of employment upon children younger than ten years of age. I believe that it is generally granted that children under ten years of age

ought not to have to work in factories for a living. It is likewise pretty generally acknowledged that such early employment cannot but result very unfortunately to these children physically.

On the other hand the important ages to study with reference to the physical effects of premature employment are the years between twelve and eighteen; the years of adolescence, that space of life about which there is some discussion with regard to legal enactment, concerning which there is some difference of opinion even among those who are interested in children and who are striving in their behalf; differences as to whether a child should be permitted to work at twelve or at fourteen or at sixteen.

During the period between twelve and eighteen years we have to deal with physical and mental changes in the individual which are of enormous importance, and which are recognized by everyone to be so physiologically; a period which is fraught with great dangers to the child, dangers mental, moral and physical; a period during which the child grows more rapidly in length than at any other time save that of early infancy; a period during which, because of the sexual development going on at this time, the child's nervous system is almost turned topsy-turvy. In many cases it is turned topsy-turvy and at this time the child is peculiarly open to external influences of both moral and physical character.

There is a vast difference between the work which a child's muscles do in factory employment and the work which that child will do if he is allowed to go freely as he chooses. A child between the ages of twelve and sixteen or eighteen years will, if given the opportunity, play and play hard. He will play baseball, play football, and he will use his muscles most energetically. He will take great delight in using his muscles in a gymnasium if he is given the opportunity. Therefore we are told by many who employ children or who would like to employ children at this age, that they are not using their muscles to any greater extent than they would use them if they were given simply that to do which they would choose to do, meaning thereby play.

Muscular exercise is beneficial. Exercise is our only means of strengthening the muscles, of encouraging their development, but the building up of a muscle which is actively growing and developing must be accomplished by exercises which are not too severe,

which are not too long continued and which are of constantly varying character.

Furthermore, the muscle which carries out exercises must be given frequent periods of rest, during which it may recover; it should be given an opportunity to build up again that which has been consumed by use.

What happens when a child is employed in a factory? The child is employed in a factory as rule in one of two ways; either in a standing or in a sitting occupation. Sometimes the character of the occupation is such as to combine the evil effects of both these positions.

Such a situation has been made clear to me in the illustration which Doctor McKelway gave with reference to the occupation of children at looms in the cotton mills. The child at the loom stands and sits at once, as it were, because he must stand in one place continuously for a long period of time in order to control the operation of the machine, and at the same time he must keep close to his work in order that this may be possible. Thus are combined the unfortunate effects of both sitting and standing.

That which is unfortunate in factory employment as far as purely physical effects upon the muscles are concerned, is the fact that a muscle must perform its functions for a long period of time without the opportunity of relaxing, without the opportunity of recovering. When a muscle has performed its function up to a certain point, we experience the sensation which we speak of commonly as fatigue. Fatigue means that there is an accumulation in the muscle of the waste products of its use, which have not yet been carried away and replaced by new material. If we continue to use a muscle far beyond the point of fatigue repeatedly, there results in that muscle in the course of time instead of further upbuilding, a degeneration and the result of such excess fatigue is the final weakening of a muscle which, if treated properly, would on the contrary grow stronger continuously. The result is that we find the children who are thus unable to change their position to relieve their over-tired muscles, taking peculiar positions which at first we call bad habits. We speak of the child that has round shoulders, for example, as habitually holding himself badly. Why does he hold himself badly? Simply because his muscles are not capable of holding him in a proper position, in what we call a

normal position. It is not a matter of slouchy habit of mind, either; it is a question of muscular weakness.

So with the child sitting at the machine, so with the child standing at the work bench continuously for periods varying from six to eight or nine hours a day. It is the lack of opportunity to relax, the lack of opportunity for these muscles to gain, within a reasonable length of time, what has been used up, which causes degeneration to take place, which causes this weakened condition to take place, and by reason of this weakened condition, certain postures which are abnormal and which will develop into deformity.

At a former conference of the National Child Labor Committee I strove to show how premature employment in standing positions tends to produce postural deformities of the feet; how sitting employment in young children tends to cause distortions of the spine and chest, and to what extent the conditions thus produced are likely to interfere with future industrial efficiency, as well as future health and chances for a normal tenure of life. It is not necessary to revert to these questions further at this time, but it seems well to mention them, and to call attention to the importance of the matters involved.

Consensus of opinion among medical men is that the period of adolescence is of critical importance for the individual, both mentally and physically. For me the physical condition of children has been of primary interest from a professional viewpoint. As before remarked, even if it could be shown that what we call premature toil was not injurious to the physical organism of the child, there would still be ample ground, both economic and humanitarian, why such employment should be forbidden.

Nevertheless it is highly important to seek definite information respecting the physical effect of such employment and for two reasons. The more important of these in my judgment concerns us the less in the purposes of this conference, since it advocates an investigation into the matter purely as a contribution to medical knowledge. As such a contribution, however, an inquiry of magnitude would assume great importance and would be likely to lend a determinative influence of great value to certain theories at present contending for proof, proof hitherto lacking because of the impossibility of carrying on an inquiry of such scope under private auspices.

It is held by some that the marked deformities of adolescence, such as lateral curvature of the spine and the severe deformities of the feet appearing at this time, cannot be produced by occupation or habit without the existence of structural weakness or disease of the bones of antecedent character. On the other hand, it is maintained that such deformities may result from overtaxing the muscular system alone, during this period when growth and development may be considered the principal functions of the body. If we could have such an investigation, it would be most important in its results, I am sure.

Whether deformities of children develop as the result of very unfortunate or improper employment, depends on a number of factors. Not every child who is employed too early in life or in an improper manner develops deformity. On the contrary, it is highly probable that a comparatively small proportion of them develops deformity. But in speaking of the physical effect of premature employment, we are not dealing with deformities alone, but with the damage to the child's general organism as well.

To begin with, children come to their employment with various abnormal conditions already existing. They come suffering from mal-nutrition as the result of insufficient or improper food at home. They come with the traces of former disease of the bones, such as rickets, and of tuberculosis and of inherited diseases. They come after having been employed to an excessive extent in their homes, or having been given improper work in their homes, or having been confined to their homes to an undue extent. These things, all of them, lead up to the postural deformities, which develop later during the course of their employment, and these deformities may be present and in formation when they come. However, this is to be remembered, that a spine which has started to become crooked, that has begun to weaken, and a chest which has not developed to the normal extent may be likened to a nail slightly bent. It may seem strong enough when you look at it, it may seem strong enough when you try to bend it with your fingers, but put it under the hammer and instead of going into the wood it bends still more. This is precisely what happens to these unfortunate children when they are placed in the unfavorable environment of factories and workshops, and at a time when their growth and development are not yet complete.

We have heard much of the influence of the school on the organism of the child. A great deal has been said and written on the subject. It is granted, I think, by schoolmasters everywhere and by others who have given the subject careful study, that the school very often has an exceedingly unfortunate influence on the physique of the child. It is said to be exceedingly important that the child should have the right kind of desk and the right kind of light. But remember that children in the poorest school are under no such unfortunate circumstances as the child is in the workshop or the factory. The child at school changes his occupation at least once an hour, during which time he has an opportunity of relaxing somewhat, or moving about. He has an interval usually in the midst of his tasks for some physical diversion. The hygienic conditions of even a poor school are much better, it seems to me, than the hygienic conditions in the best of workshops, so long as a child must spend nine or ten hours a day, or even eight hours a day, at work with only the lunch hour as an opportunity for diversion and relaxation.

A comparison of the agricultural child with the child in the factory or workshop has been made, and curiously enough it was a thing to which I had meant to give some consideration. It seems to me that the advantage is all upon the side of the child on the farm, even though he work ever so hard. I shall not go into the details of this question. They were very fully entered into just a few moments ago and much better than I could do, but I have this to say about this phase of the matter; that it is common knowledge that many of our most prominent men, not only a few, but a great many of them, have come from the farm, and they themselves have told us how hard they worked, how unfortunate were some of the conditions under which they worked. But these conditions seem to have done nothing more for these men than to give them a rugged physique and to give them opportunity for mental development which has enabled them to rise above their fellows.

Where are the graduates of the factories? I have not come across them in literature, science, art or politics. And I do not believe that they are there to be found to an extent at all considerable.

The whole question, however, of the physical effect of premature employment is more or less in doubt as regards exact information. We know or we think we know that such an environ-

ment as a child has in a workshop or a factory is capable of contributing at least very largely to the development of actual postural deformities, as we call them. We do not know how the occurrence or the danger of such deformities among such children will compare with the occurrence of the same deformities among children who do not work, because up to the present time no comprehensive investigation has been made in this country at all.

Therefore it is highly important that we should have such an investigation, and the purpose therefore of all I have stated is to show, not how much we know about the occurrence of physical deformities in factory children and children in other classes of work, but how much we do not know and how much we should know. Therefore it is a plea for the Children's Bureau.

CHILD LABOR AND THE JUVENILE COURT

BY JAMES A. BRITTON, M. D.,
Chicago.

My reason for speaking on the relation of child labor to delinquency is not because I have anything new to say, but because there have been things said on the subject that are well worth repeating. A few years ago a school boy who deserved a whipping got one; now a school teacher who finds it necessary to whip a child is considered incompetent. Our courts likewise have undergone a change. At one time everyone who had committed a crime had, as a matter of course, to be punished. The existence of the Juvenile Court is evidence that the old idea is losing ground. It is now considered much more important to find out the real cause of a crime than to punish the particular criminal.

Thinking people of to-day give but two reasons for punishing criminals: first, isolation necessary to protect others from contagion; second, restraint so that a diseased or abnormal mental condition may be treated. On account of the results obtained from conventional methods of punishing criminals a large-sized doubt has arisen as to the social value of our efforts. This is especially true with the juvenile offenders. The more young criminals are studied the oftener the question is asked as to the amount of personal responsibility they bear for their crimes. It is generally acknowledged that inheritance and environment have far more to do with the production of crime than any other influence. But inheritance is simply the effects of environment transmitted. We are fond of saying "blood will tell," but what we should say is, "Environment will tell whether immediate or transmitted."

It happens that most of our crime-producing environment is in our cities, and as some wise one has said that the Lord made the country, but had nothing to do with the towns, it should follow that those who made the towns are responsible for this environment. Because of the feeling that crime, and especially juvenile crime, is caused by an environment for which society in general is responsible, we have the Juvenile Court as it is to-day. This

court, with its accessory probation officers, tries to discover the particular influences which cause crime, also to discover whether each particular young offender has had more of a dose of "environment" than the antidote of helpful influence of a thoughtful probation officer can counteract.

One of the elements of this environment, and by no means the least, is child labor. This has been said by nearly every one who has given the subject any thought, and especially by Morrison, Mrs. Kelley, Travis, Miss Goldmark and others. The record of the first one hundred delinquent boys and the first twenty-five delinquent girls which were examined this year in the Chicago Juvenile Court is taken as a basis for the following figures. (See page 113.) The record is fairly representative of the twenty-five hundred delinquents examined in the past year and the percentages do not vary to any considerable extent.

Of the one hundred delinquent boys, sixty-five of whom were past fourteen, only one had finished the eighth grade, and only eleven had finished the sixth grade, and all but ten of these one hundred boys, were born in this country. Fifty-seven had been in the street trades—forty-three newsboys, twelve errand and messenger boys and two peddlers. Thirty had had miscellaneous shop and office jobs, and only thirteen of the one hundred claimed to have never worked. Of this thirteen only six were past fourteen years of age. Not a single boy had ever been apprenticed in any trade.

Sixty of these boys were physically considerably below normal, but contrary to several published statements we found only one case of acquired venereal disease. This same percentage of venereal disease among the delinquent boys under sixteen holds for the two thousand which were examined last year.

While eight of the one hundred boys were under twelve years of age, none of the girls were under twelve. All but two of the girls were born in this country, and while four of the twenty-five had finished the eighth grade, not one of them had entered the high school. Only four of the girls had never worked and only two of these four were past fourteen years of age. The general physical condition of the girls was much better than that of the boys of the same age, but forty per cent. of these twenty-five were suffering from acquired venereal disease.

At the present rate eight per cent. of all the children and twelve

RECORD OF 100 DELINQUENT BOYS AND 25 GIRLS EXAMINED IN THE JUVENILE COURT OF CHICAGO.

Boys.

Physical Condition.	WHERE BORN.		Age.	Grade Finished.	No. Children in Family.	OCCUPATION.		Work.	Charge.
	Boys.	Parents.				Father.	Mother.		
Good...40 Fair...9 Poor...15	Native...90 Foreign...10	29 71	8... 2 9... 0 10... 4 11... 2 12... 6 13... 21 14... 28 15... 18 16... 19	2... 2 3... 10 4... 20 5... 32 6... 16 7... 10 8... 1 9... 2 10... 1 11... 1 12... 1	1... 3 2... 10 3... 15 4... 19 5... 10 6... 17 7... 9 8... 4 9... 2 10... 1 11... 1 12... 1 Average...4.8	Dead...16 Deserted...4 Skilled labor...30 Unskilled...35 Business...8 Clerks...7 Stepfather...1	Dead...16 Housework (home) 59 Washes and scrubs 12 Boarding house...3 Dressmaker...2 Baker...2 Sick in hospital...2 Clerk...4 Stepmother...4	Never worked...13 Newsboy...43 Errand boys...12 messengers...12 Peddling...16 Shopwork...16 Office boys...4 Odd jobs...10	Stealing...50 Burglary...16 Running away...15 Fighting with weapons...7 Truancy...6 Drink...2 Cigarettes...2 Concealed weapons...1 Jew-baiting...1 Pulling off trolley...1

GIRLS.

Physical Condition.	WHERE BORN.		Age.	Grade Finished.	No. Children in Family.	OCCUPATION.		Work.	Charge.
	Boys.	Parents.				Father.	Mother.		
Good...14 Fair...9 Poor...2	Native...33 Foreign...2	12 13	12... 1 13... 2 14... 4 15... 3 16... 0 17... 5 18... 2	None 1 1... 3 2... 3 3... 5 4... 6 5... 4 6... 2 7... 2 8... 4	1... 2 2... 4 3... 5 4... 5 5... 5 6... 1 7... 1 8... 2 9... 1 10... 1 11... 1 Average...4.6	Dead...9 Deserted...1 Unskilled...8 Skilled...6 Business...1 Stepfather...1	Dead...10 Housework...9 Washer...3 Dishwasher...1 Tailor...1 Insane...1	Never worked...4 Housemaid...8 Clerk...3 Stenographer...2 Laundry...2 Tailor shop...1 Stage...1 Nurse girl...1 Chamber maid...1 Waiter...1 Candy factory...1	Stealing...1 Prostitution...14 Away from home...10

per cent. of all the boys born in Chicago, who live to be ten years of age, will be brought into the Juvenile Court as delinquents before they are sixteen. This does not take into account five per cent. of all children who will be brought into the court as dependents, and from whose ranks come a large number of delinquents.

During 1907, one-third of all the delinquent children brought into the Juvenile Court of Chicago were sent to some reformatory. On the average a delinquent boy sent to the John Worthy School costs the city for court expenses, Juvenile Home expense and school expense \$200 per year. On this basis, which is low when compared with the cost in other like institutions, the city of Chicago pays for its delinquent children committed to reformatories \$168,600 per year. We must remember that these figures apply only to children under sixteen. It takes only a casual investigation to convince one that a schoolboy who spends several hours a day selling papers is not nearly so apt to get along in his school work as a boy who is not subjected to this fatigue. Nothing kills interest like being unable to keep up with the class. Failing to make a grade marks the beginning of many a laborer's career for one who might have been a skilled workman.

Judge Kerr, of Minnesota, says that three-fourths of the total number of prisoners who have passed through his court were unskilled laborers. Hardly a factory to-day will take an apprentice who has not finished the eighth grade, and many factories demand graduates of technical high schools. What chance is there for a boy who loses out so early in the game?

The various steps in the production of juvenile delinquency have been known and talked about for years. The commonest example is that of the home which for some reason does not functionate and as a result the child is sent out to bring in money. In the unequal struggle for the few cents which he gets, the child loses health, both moral and physical. The frequent example of this child is the newsboy. The average newsboy if he works three hundred and sixty-five days a year does not earn over \$100. If he becomes a delinquent it costs the state at least \$200 a year to care for him. When we remember that twelve out of every one hundred boys between ten and sixteen become delinquent, and that over sixty per cent. of these boys come from street trades, it does not take long for a business man to figure out that it is rather poor

economy to let a ten year old boy go into at least this field of labor.

I was brought up on a farm and I have known some farmers that would work in the rain, but I never heard of one that did not know better than to hitch a half grown colt to a plow.

To summarize:

1. The production of juvenile delinquents causes the state an enormous expense.

2. Child labor is one of the important, if not the most important, factor in the production of juvenile delinquency.

3. Lack of school and stunted physical development in the majority of cases prevent a possibility of any future but that of unskilled labor for the average child who is sent to work too early.

4. From an economic standpoint the family who sends out a ten year old boy to sell papers loses a great deal more in actual money from the boy's lack of future earning capacity than the boy can possibly earn by his youthful efforts. In other words, this sort of labor from an economic standpoint is an absurdity.

There is no doubt that the age limit at which children are permitted to work outside of school hours should be raised. If a ten year old boy is not permitted to work in a factory why should he be permitted to work half of the night in the street selling papers? Some of our Eastern cities are compelling all children working on the street to be licensed in order that better track may be kept of them. But why, when the sum total of such work is a loss to the state as well as to the individual family, should it be permitted at all? Why should ten boys be wasted on a job which two men could do without running either the physical or moral risk? At present a psychopathic clinic is being organized in connection with our Juvenile Court. Not so much to study shapes of head and sizes of ears as to follow delinquents into the actual crime producing environments with a view of doctoring the environment instead of the criminals.

OVERWORKED CHILDREN ON THE FARM AND IN THE SCHOOL

BY WOODS HUTCHINSON, M. D.,
New York City.

Child labor is as old as civilization. Indeed, in all but name, it is far older than civilization for the child of the savage has to forage for himself and fight for his own food from the time he is able to crawl. In savagery, the child works for himself; in barbarism, for his parents; in civilization, for a factory. He simply changes taskmasters with the ages, and the sternest and most cruel of all was the first. More children die of starvation, disease and neglect in the healthiest tribe of "noble savages" that now exists, than in the vilest slum of our factory towns under civilization. There is abundant ground for being ashamed of ourselves, little or none for discouragement or fear that the stamina of the race is being undermined, or its continued existence threatened by child labor. The race is *not* deteriorating, even the child of the factory slums is one and one-half inches taller and seven pounds heavier than he was thirty years ago. So far as data are available, it seems almost certain that there never was, in any previous age of the world, as little harmful child labor as in the present one. The magnificent and beneficent series of laws and regulations forbidding harmful child labor which have been placed upon the statute books of all civilized countries and states, largely by the activities of such societies as this, are simply a living demonstration of an awakened public conscience upon this subject, which did not exist before. The evil was present in abundance, but so diffused as to make no pointed appeal to public sentiment, and so universal that it was accepted as a matter of course.

It is gravely to be doubted whether the invention of machinery and consequent development of the factory system, making the labor of children more valuable, since brute strength was no longer required, upon the whole increased either the amount or the harmfulness of child labor. It simply concentrated, and, so

to speak, advertised its evil consequences; just as the poverty, malnutrition, dirt and disease of a hundred thousand peasants and agricultural laborers, when scattered out over a whole countryside or province, escape our observation, but horrify us when they are concentrated into four or five acres of a city slum. When children are overworked by the score and by the hundred in factories, in full view of the public, so that streams of their pale faces and stunted forms may be seen pouring out upon the open street, it is only a question of time when the public conscience will be awakened and the shame forbidden by law. So marked has been this effect that although there is yet abundant room for improvement, taking the civilized world as a whole, the child in the factory, shop, mine and mill, is now carefully and fairly efficiently protected by wise, thoughtful and humane laws, leaving as the only unprotected classes, the children upon the farm and in the school. To what extent they need protection, not by law, but by the education of public sentiment, is the problem of this paper.

This Committee has been so gratifyingly successful in its efforts for legislative reform, that I believe the time has come for it to turn its attention in this direction as well. The relative magnitude of the problem is easily indicated by a few rough figures. According to the last United States census, there were, of children under sixteen years of age in the United States, 650,000 employed in gainful occupations in factory, shop, mill, etc.; 1,100,000 working for wages upon farms; and roughly, 15,000,000 in schools. It is easily seen where the greatest possible menace to the future of the race might fall. If only one per cent of the children in schools were overworked or overconfined; if only five per cent. of the children employed upon farms, including those working at home were so injured, it would work more injury to the nation than if twenty per cent. of those employed in shops and factories were overworked. Or to put it differently: If all the children employed in shops, factories and mines were injuriously overworked, that would only be the equivalent of the damage done if ten per cent. of the children upon our farms, and five per cent. of those in our schools were overworked or overconfined.

That overworking and underfeeding of children upon the farm and overworking and overconfining of children in the school

exist, and in no insignificant numbers, few of experience will deny. Most of us who are born or have lived in the country will have little hesitation in testifying that at least ten and probably nearly twenty per cent. of children upon farms are overworked and underfed, from land hunger, traditional ideas of economy, Puritanic notions about discipline and "hardening" and "bearing the yoke in one's youth," or from sheer ignorance and indifference. While there are many admirable and wholesome features about life on a farm, so that it is probably, all things considered, the most wholesome and desirable place for children to grow up, it has also its defects.

Those of us who happen to have been born or raised upon a farm, a *real* farm, run to earn a living and not as a healthful and very expensive amusement, can promptly and feelingly testify that it is not half so rose-colored as it is usually pictured in literature or through the pearly mists of our boyhood memories. Farmwork is the hardest and most disagreeable work there is, with the longest hours and the poorest pay. Much of it has to be done before daylight or after dark in mud, in snow, in storm and slush. Farm bedrooms are cold and badly ventilated, and the sheer discomfort, verging at times upon agony, of getting out of bed on a winter's morning and starting the fire with damp wood in a kitchen that feels like a cold storage plant in January, and then going out to thaw the pump, shovel a path to the barn, feed the shivering, staring, coated horses, and milk half a dozen frost-rimed cows, is still fresh in our memories. These and a score of similarly cheerful and agreeable memories rise before us like a nightmare. It makes little difference where we may have gone, or what our lot in life, we never have had to do anything so disagreeable or abominable since. Moreover, while there is an abundance of food growing upon the farm, that food is raised for sale and wherever the balance is a narrow one between the income and expenditure, as it is in most of farmer's families, the bulk and the best of that food that will bring a good price in the market is and must be sold, leaving only the poorer quality for home use. In short, the farmer who farms for a living, or who expects to make money, must in the terse language of the corner grocery, "do all his own work, and live on what he can't sell."

This stern necessity reacts upon the children of the farm just as it does upon those of the factory town, and the physician in country practice can show you in the remotest and most peaceful country district as severe cases of malnutrition, of rickets, of anaemia, of diseases of the joints and the spine, and of stunted development, as you can find in a city hospital. There will not be so many of them, but they will be there nevertheless, except in unusually prosperous and well-to-do neighborhoods. In the aggregate, I think it would be safe to say that they equal, if they do not far exceed, the defectives and the degenerates of our much smaller slum population. Unquestionably, a large majority of the work done by children upon the farm, being for the most part in the open air, and under the care and protection of their own parents or relatives, is not only not harmful but decidedly beneficial; but we must not shut our eyes to the fact that young children and boys and girls are overworked upon farms, badly fed, and deprived of proper amusement and social and intellectual opportunities to a most undesirable degree, and that this is one of the most potent reasons for the oft-deplored exodus from the farm to the city. When it comes to overworking and underfeeding his children, making home hateful and life one joyless, monotonous grind, a certain class of farmers has no right to throw stones at any factory operative, miner or even sweat-shop worker. If President Roosevelt's commission on country life will succeed in reforming or even improving this type of man—you all know him, whose barn is four times as big as his house, and his *real* pets and prides his horses and pigs—it will do as much good as any factory legislation that can be placed upon the statute books.

Bad as the hours and conditions under which the children in the much-berated cotton mills of our Southern states live and work, it is a question in the minds of competent physicians who have visited the neighborhoods, whether, in many instances, the children are not better off in point of food, education, recreation and opportunities for development, than they are, upon the small, barren, poverty-stricken farms of the average "cracker" or "poor white" of those states. By all means let us insist upon the strictest regulations to protect the health, the welfare and morals of the children in those mills, or let us remember that we are not restoring them to a perfect hygienic paradise if we send them back to the farms.

The same thing must be borne in mind in regard to the other great alternative to child labor, the place to which the child must be sent if he be taken out of the factory—the school. As things stand at present, it is my unwilling judgment that while the factory may become a sweat shop, the average school in the United States to-day is little better than a mental treadmill for the average boy of the working classes after twelve years of age; that the education is so purely formal, so bookish, so ladylike, so irrational and impractical in a word, that it stunts his mind, bewilders his senses and fills him with a dislike for real education and training, which warps him mentally as badly as the factory does physically. Many a boy of this class and age, as our antiquated curriculum stands at present, is better off working six hours a day, in a well-ventilated, thoroughly sanitary workshop, conducted on kindly and intelligent principles, than he would be in the schoolroom droning and day-dreaming over classical absurdities, in which he can find no interest nor profit. The motto of the school is "By books ye are saved." But it is a case of "the letter that killeth." In the total, the school is doing more physical damage to our children than the factory.

What the boy wants is not books but *life*, not words but *things*, and as matters are arranged at present, he has to leave the schoolroom and go into the factory or the shop to get them. The average schoolroom is preferable to the shop or factory for the working boy or girl after the thirteenth year, in but little more than the fact that it protects him from physical overstrain and its deadening six-hour confinement at hard and uninteresting tasks, which is a heavy offset to this.

Not only so, but this utter lack of appeal of the public school curriculum to the working boy of thirteen or more is one of *the principal causes of the rush of child labor into the shop and the factory*. Taking it the world over, the principal cause of harmful child labor is poverty; the stern need of even the pittance that can be earned by the child to enable the rest of the family to live, not unmixed with greed on the part of a certain class of parents, eager to recoup themselves for the expense and trouble of rearing a large family. In European countries the value of the child's earnings to the parents is the principal motive for early work. In this country, however, we are more fortunately situated.

Wages are higher, so that the father's income is more often or more nearly adequate to support the entire family, and the average of intelligence and humanity in the parents of the working class is much higher so that they can see the advantage of giving their children the best possible start in life.

Statistical investigations of this point appear to have been made only upon a very limited scale. But so far as they have gone they bring out the interesting fact that from fifty to seventy per cent. of the child labor at too early years is due to the initiative *not* of the parent but *of the child*. The causes alleged by the children for their choice were most suggestive; while many of them simply wanted to earn money, to have more to spend, to get on in the world, to buy better clothes or went just because their friends and comrades did, the largest single group gave it as their reason that they were tired of school, that they could not get on at school, that they could not understand their studies or even, *horrible dictu*, that they got sick at school—they seem to stand confinement of the shop better than that of the schoolroom. In many of these cases, the parents were not only perfectly willing for their children to continue at school, but were paying out money for instruction in bookkeeping, shorthand, music, drawing, etc., in addition to letting the children keep their wages. In short, the conclusion, strange as it may seem to many, is almost inevitable that if we rationalize and modernize the curriculum of our public schools, we should cut the foundation from under one-half if not two-thirds of the child-labor tendency. In fine, as our most intelligent teachers, our most thoughtful students of pedagogy, our physicians, our sanitarians, our child-labor students, have united for years in declaring the most vital, the most crying demand before the American Commonwealth to-day is to make our public schools *educate the whole child*, and not merely the expanded bulb at the upper end of him. Train him physically and emotionally as well as mentally. Substitute the playground, the garden, the shop for the book-school. Fit him for life and for action, instead of for contemplation and culture; for service instead of superiority; for work, not for display.

HANDICAPS IN LATER YEARS FROM CHILD LABOR

BY WILLIAM E. HARMON,
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So much has been written upon the effect in later days, of child labor under unhealthy conditions, that the case of the child against his present environment of the workshop or mine is fairly demonstrated in his favor.

In defending present conditions of employment other arguments are used—those of expediency; the necessity of assisting in the support of the family; the unequal competition through unequal laws in different states; the correlation between the employment of children, and the employment of men and women in keeping the factory, mill or mine in operation.

Investigations with which we are familiar are naturally the study of extreme types, excessive hours, unsanitary surroundings, bad light and poor food; and the mass of testimony gathered embraces that class of workers with which we have but little intimate relationship or personal concern—the child of the mine, the cotton mill and the glass factory.

Could it be shown that child labor has and is influencing our own American civilization, has perhaps already placed its stamp upon our own careers and will on those of our children, the situation would assume a different aspect. The disorder will have entered our own households.

My purpose is to take up the influence of child labor, upon the best of our people; to trace out the agencies which have affected the ultimate accomplishments of men and women of fine, natural faculties; to show that in a greater or less degree we, ourselves, may be suffering the blight of the heavy burdens of our clean-blooded ancestors who hewed wood and drew water, and made this country what it is. With them it was a condition which came out of the necessities of a primitive life in a new country. With us it is no longer either necessary or right. It may be possible to trace an invariable connection between child labor and manhood mediocrity. The current phrase "that any American boy may become Presi-

dent" may not only be untrue, but the truth may be that very few boys who gain a living by laborious effort can possibly afterwards fit themselves for this or any other position requiring serious mental work. I am inclined to think we will see that the instances where a man has arisen above seemingly extreme handicaps in youth, prove rather than disprove the proposition that excessive labor in childhood, not only interferes with the normal development of the man, but actually prevents it.

Of those who may be classed as representing the true American type, the largest number are engaged in agricultural pursuits. There are six million farmers, of one sort or another, in the United States—of these, four million labor with their own hands, and use their children to a greater or less degree in the various activities of the farm. As a whole, these people come from good stock, and are of average intelligence. The farm affords normal, if not the best soil, in which to produce representative men and women. The child of the farm is not handicapped by the manifold disintegrating influences surrounding the city child, nor the child of immoral or destitute parents. In fact, the farm of itself gives the child a fair chance—it is a culture bed in which the body and brain grow toward, rather than away from the normal. Therefore, the study of the effect of child labor on the farm will give us an accurate idea of the actual results of the child labor itself, removed from the complications arising from an environment, which is of itself baneful.

Effect of Physical Strain

There is little available statistical material showing the effect of excessive child labor under healthful conditions. The consideration of this aspect of the subject has been incidental to investigations of children under bad surroundings. It has been largely the bi-product of work on the more imminent problems requiring immediate action. The most one can do is to give the results of experience and personal observation, and a fragmentary outline of the experience of others. My purpose is to call attention to a fact which I believe to exist, rather than to prove it; to encourage a study of the matter by those interested in children and their betterment; to lay out lines for future work; to give a basis of probability; and to justify ultimately a comprehensive survey of the situation.

My own consideration of the problem, which has extended over a number of years and in various parts of the country, has convinced me that excessive toil under the most healthful conditions between the ages of twelve and sixteen, or that any toil during this period which precludes an equivalent development of the intellect, results in an arrest of the normal growth of the brain; a replacement of functional with connective tissue or neuroglia. It reduces permanently the mental capacity of the individual, reflecting itself subsequently by the loss of ambition, of will power, the power of concentration, of extended mental effort.

An investigation made to determine the correctness of this hypothesis may proceed along three lines:

1. In the study of families of children where exactly the same conditions of living exist, but in which certain of the children have the opportunity for mental development, while the others are deprived of it through work. A study of this type of case, if sufficiently extended, would prove beyond dispute the truth of the proposition herein presented—if it be true.

2. A study of the children sent from institutions for adoption. If the intellectual achievements of the children of adoption, in a large percentage of cases, were greatly beyond those of the remainder of the family, the evidence would tend strongly to the validity of the proposition. The advantage here is, that the material is easily accessible, although the results are not so conclusive.

3. The third line of investigation would be to make a comparative study between the relative accomplishments of parents and children. It is reasonable to assume that the natural capacity of the child and his parents is about equal, and if the inability of the parent, through toil in childhood, to secure an education, has resulted in a serious handicap in later years, when compared with his children, to whom, by self-sacrifice, he has given proper opportunities, it is at least presumable that the labor itself has had to do with the case.

Early Employment vs. Opportunity for Mental Development

For many years I have been interested in this question, particularly in many country districts of the United States. I have seen instances where whole families, except perhaps one member, were raised under conditions involving severe physical

labor during youth, and I have noted in the subsequent history of the family, the fortunate child pursuing an even and continuous career of advancement, while his brothers, not only were left behind, but went on through life unstimulated by ambition for betterment. I have seen fellow playmates at twelve years of age equally bright, part intellectually, never to meet again, by reason of one being committed to a few years of hard labor, while the other pursued his onward course, growing intellectually as he grew physically.

I have watched the individual working child at eight, ten and twelve years, bright eyes, face full of latent intelligence; at fourteen his eyes begin to deaden, his face becomes heavy; at sixteen much of the light of intelligence has passed out, and he gazes on the world in the quiet open-eyed manner of the mentally deficient—his ambition gone, his powers of rejuvenation vanished.

I have accumulated some data bearing on the subject, where the illustrations of my hypothesis seem indisputable. The following are a few of the conspicuous instances wherein the facts seem plain:

A. Tennessee farmer, moved in 1870 to Texas, with twelve children—extremely poor. The whole family, except one, worked on the farm and in the neighborhood. One went to live with an uncle who was station master, assisted in the work, learned telegraphy, studied law, moved to New York, is one of the leading lawyers in the city. All of his brothers, except one, whom he himself educated, are small farmers or laboring men.

B. Young woman, born in Ohio, member of a family of several children, all of whom earned a living by extreme labor. She went to live with a relative, who was postmaster in a fourth class post office; studied with the local minister in odd hours; afterward took a course in a business college; worked at stenography; became interested in medicine; is now editor and large owner in one of the most important monthly publications in the country.

C. Kentuckian, born 1850, five brothers, all worked on the farm. He was sent to school, working in the Summer months; studied engineering; is now president of an important New York National bank. The rest of the family have remained on the farm—are all men of limited intelligence, and have accomplished nothing of consequence.

D. Virginia boy; overworked as a child in making railroad ties; was exceedingly bright at ten and twelve. Is now twenty years of age and very energetic; ambitious to do, but lacks power of concentration; becomes easily confused, and is earning the wages of a farm laborer. The remaining children of his family have had some advantages, and are all progressing intellectually in a normal manner.

E. Four brothers, born in Ohio between '40 and '50; two worked on the farm, and one in the shop of their father, cabinet making. The fourth took a job in a printing office; learned to read; set type; subsequently became proof reader; then editor; passed a competitive examination for commission in the United States Regular Army, and entered upon a career of much distinction. One brother a carpenter; one dead; one a harness maker.

F. Four boys on an Ohio farm; oldest brother worked extremely hard during youth to support the family, and subsequently sent the younger children to school. All of these children have succeeded well in business. The older brother has paid the penalty by an intelligence so greatly inferior to his brothers that it would be hard to distinguish them as of the same family.

All but one of these examples are children of farmers or families where the natural environment was good. These are given in illustration of the lines of investigations first indicated; where children of the same family, through relatively different opportunities, have worked out totally different careers.

The Changes in Environment

With regard to the second type of cases, those children removed from a limited to a broader environment—by adoption,—I have for some time been interested in providing homes of adoption for the children of indigent parents. These children naturally secure many advantages in their new homes, and it has been easy to follow their careers, and even to learn something of their brothers and sisters. A relative of mine has been engaged in the investigation of children of this type, who have been already placed in homes.

The general opinion of those with whom I have consulted, such men as Homer Folks and Charles Loring Brace, and my own observations lead me to believe that the career of the child of adoption is much the same as that of the other children of the family into

which he or she is adopted, and in many instances is marked with great success, while the other children, who remain with their parents because they are sufficiently advanced in years to help support the family, have been little better than their indigent parents.

Relative Achievement of Parents and Children

The third class of cases which I have investigated, and regarding which I advise study, involve the relative achievements of parent and child. It is here the question becomes an intimate one, touching our own lives. We are surrounded by living illustrations of the injury of child labor in our own ancestry, either direct or collateral.

The winning of the West was a heroic achievement, and yet, it had its price in the limitation of intellectual development in most of our grandfathers and great-grandfathers. I am not contending that there were no compensatory advantages in the development of the physical qualities of courage and endurance to which we owe greatly our present day success. I merely assert that, with the generation itself, there were limitations imposed which absolutely precluded the men of the time from such acquirements as to-day are open to those without the intellectual handicap. Ulysses S. Grant became President of the United States, but Jesse Grant, the tanner and contemporary of my own grandfather, could neither have occupied that exalted position nor any other of great importance.

The life of Abraham Lincoln is an exemplification of the possibility of achievement under extreme conditions, but in Abraham Lincoln we find an individual of great physical strength, on whose vitality ordinary tasks made no impression, and who, through the influence of a neighbor, absorbed early a love of books and learning. Had Abraham Lincoln's labor been measured by his strength until he reached his sixteenth year, it is quite possible that the world would never have been enriched by the life contribution of the Great Emancipator. The present generation is one with which we have to deal and the present day requirements are not those of the pioneer. The problems we meet are those requiring intellectual equipment. Those of the early part of the nineteenth century required largely physical strength.

I am familiar with the South where the ante-bellum farming

aristocracy and the lower whites are equally poor. We see in our cities the "unsubmerged tenth"; those who, by the sacrifice of family, or extraordinary virility and ambition, have been enabled to gain a start; but you can travel among the plantations of Virginia, North and South Carolina and find hundreds of families of the best type and heredity where poverty has been so extreme as to require the constant toil of the children; and wherever you find it, almost invariably the marks of mental arrest are distinctly evident. I have traveled through the mountain districts of Kentucky, Tennessee and West Virginia, where the stock is pure American for generations back, but where child labor is almost universal, and where the educational impulse has scarcely touched the people. Here the sign of organic degeneracy is well-nigh universal.

To all of us the investigation of this class of cases is an easy one, and if we will but give the matter serious thought, I am convinced that the evil of child labor itself, removed from any other correlative influences, will be apparent. We have but to look about us to trace the history of families in our own community; in fact, to study ourselves, in many instances, to find wherein the excessive work of our fathers and forefathers has handicapped us in the exercise of the finer intellectual and artistic faculties which we feel sure are potentially resident within us. This brings the problem into our own households—this makes the evil cry with a near voice and imposes a task on us on behalf of our own posterity.

Mental Retardation

In the great and permanent work to which the National Child Labor Committee is devoting itself, nothing could be more fruitful of good results than a thorough investigation into the definite though subtle influences of work itself on the development of the growing boy or girl. I am personally convinced that with excessive toil there is an actual organic change which takes place in the brain before the age of sixteen; a cessation of the growth of the functional or gray-cell tissue—a lessening in the depth of the convolutions, or possibly, a replacement of functional by connective tissue, which, for all time, puts a check upon the mental capacity of the individual. It does not merely make success more difficult—it makes certain kinds of success impossible. The loss

of an arm, a leg or an eye handicaps the individual—it makes it more difficult for him to accomplish his ends, but it does not make it impossible. The loss of hearing or of sight absolutely closes the door to work in certain directions. So it is with any structural change in the brain which diminishes its capacity. The world would stand aghast if a considerable percentage of our healthy children were deprived of eyesight or of hearing, but the same condition is being permitted to take place wherever children are forced, even under healthy conditions, to toil during the period of adolescence to a degree which deprives them of either the time or the strength to cultivate their power to think.

Such an investigation would be within the proper functions of the National Child Labor Committee. It would involve a broad study of individual cases; it would ramify into all the conditions of living. Where children under exactly similar conditions of heredity are placed in different environments, are many in number, but somewhat difficult to find. The study of children of adoption is easy, but not altogether satisfactory. The investigation of the relationship between parent and child, through history and in society, would reveal a multitude of cases, but obviously the evidence therein gathered would be accumulative rather than positive; but I am sure enough data could be collected to clearly prove the proposition that child labor itself is productive of degeneracy of the mental fibre. The evidence would also impress and make more emphatic the greater evils of child labor under adverse conditions of health in the work shops, cotton mills and mines, and would bring home to us the grave responsibility of permitting any of the youth of the land to be deprived of the privilege of equipping themselves for a fair chance in the struggle for success. It would show that this country is not free to all its subjects—that many are actually condemned in childhood to a form of slavery, for which the community itself is largely responsible. It would fortify the longings of those now making sacrifices to give their children an education; it would place a restraining hand upon those who, perhaps through their own earlier limitations, are indifferent to the conditions surrounding their offspring. It would strengthen us in our effort to enlarge the opportunities of the young, for it would be irrefutable proof that not only is child labor bad under unsanitary surroundings, but that all excessive labor

among children, or even all labor which does not give full opportunity for simultaneous development, is criminally wrong.

On account of the important program to which our National organization is committed, this aspect of the case has not been seriously regarded, but it may be the gravest of them all, and I trust that others will determine to consider the question—to study it in their own lives and the lives of those about them. I think there are very few of us who, through our individual experience, cannot find evidence enough to show the hypothesis herein stated provable, if not proven.

If it can be clearly demonstrated that continuous labor of any kind, imposed upon a boy or girl, introduces an element of danger to his well-being, the public conscience can be relied upon to ultimately work out a solution of the problem.

ACCIDENTS TO WORKING CHILDREN

BY EDWIN W. DE LEON,

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Exactly one hundred and seven years ago, the first protective labor legislation of the civilized world was enacted in England. It was intended then, as all such legislation is to-day designed, for the protection of the masses against the classes. Two names, representing the extreme ends of the social scale, will forever be associated with the inception of this great movement, Lord Ashley, Earl of Shaftesbury, and Robert Owen.

As far back as 1601, in the reign of Elizabeth, destitute children and orphans were required by law to be taught spinning, weaving and other trades, and to be later apprenticed. In those days the condition of such children was deplorable. They were put to work at five years of age, and worked from seven to five in winter, and from six to six in summer, attending school after the long day's work was finished. Between the age of eight and eleven they were apprenticed, which meant that they were consigned to little more than slavery in the hands of masters, often brutal and unscrupulous.

The intolerable conditions existing at the beginning of the last century in England resulted in the passage by Parliament in 1802 of an Act, introduced by Sir Robert Peel, known as the Health and Morals of Apprentices Act. This statute limited the number of working hours to twelve a day; provided for instruction in reading, writing and arithmetic after working hours; abolished night work gradually; stipulated that factories were to be kept cleaned and ventilated, and that apprentices should be properly housed and clothed, and should attend church at least once a month. All mills and factories were required to be registered with the clerk of the peace, and two justices of the peace, one of whom must be a clergyman, were appointed as inspectors of factories with power to impose fines varying from two pounds to five pounds for violations of the Act.

Kinder Wood in his *History of Factory Legislation* states that "Socially and industrially the first two or three decades of the nineteenth century form a gloomy period, in which, as Spencer Wal-

pole observes, it took twenty-five years of legislation to restrict a child of nine to a sixty-nine-hour week, and that only in cotton mills." Continued agitation on this subject by Robert Owen and others resulted in the passage in 1819 of an Act placing the age limit at nine years, and prohibiting any child under sixteen years from working more than twelve hours a day, exclusive of meal times. This law applied only to cotton mills, although the advocates of the act intended it to apply to all mills in which twenty or more persons were employed.

Various acts were passed between 1819 and 1832, but it was in the year 1833 that the turning point of factory legislation was made by a law that has been referred to as "the first stone laid in the up-building of the great fabric of factory and protective legislation the world over." This memorable act was the result of the work started by Michael Sadler, a philanthropist and economist, and completed by Lord Ashley, afterward Earl of Shaftesbury, who took his seat in Parliament in that year. The new statute called for the appointment of four Government Inspectors working under control of and directly responsible to the Home Secretary. The inspectors were empowered to enter any factory at will, investigate conditions, call witnesses to give evidence; also to make necessary regulations to enforce compliance with the provisions of the act and to make reports twice a year. All persons under eighteen years of age were prohibited from working between 8:30 p. m. and 5:30 a. m. in any textile or silk mill. No person under eighteen years was to be employed more than twelve hours a day, or sixty-nine hours in any one week. No child under nine years of age was to be employed, except in silk mills. One hour and a half a day was to be allowed for meal times. Children were not allowed in the same room with machinery or to remain in the mill after the legal working hours. One of the most important and difficult duties of the inspectors was to prevent the employment of children under the prohibited age, for both employers and parents conspired to defeat the law, the one because he wanted children, regardless of age, to work in his factory; and the other because he was willing to sacrifice the future health and welfare of his child for the sake of the few pennies that helped to increase the family funds.

It was not until 1837 that an act was passed requiring all births in England to be registered, and providing that no child be employed

without a certificate from a duly qualified physician that the child was of the ordinary appearance and in the physical condition presumed by the age claimed.

During the next twenty-five years, between 1837 and 1862, various laws were enacted relating to textile factories and allied industries, including the ten-hour law that came into effect in 1847, and the act of 1860, placing dyeing and bleaching works under the factory act.

On August 15, 1861, Lord Shaftesbury moved in the House of Lords for an investigation into the conditions of employment of children and young persons in the industries not then regulated by law. The result of this investigation disclosed conditions as deplorable as those existing in the textile trades at the beginning of the century. Children of four and five years of age were required to work by the side of parents in the hosiery trade, and, according to the report, "mothers will pin them to their knee to keep them to their work, and give them a slap to keep them awake. If the children are pinned up so, they cannot fall when they are slapped or go to sleep." It is hard to imagine a worse picture of parental selfishness, avarice and greed than one that thus blights the physical and mental development of children, and handicaps them perhaps during life for the sordid gain of the insignificant earnings from their feeble efforts.

The minimum age of employment in Great Britain is twelve to fourteen years of age for children, and fourteen to eighteen years for young persons. Children under twelve years of age may not be employed in factories and workshops; children under eleven years may not be employed in street trades. The employment underground of boys less than thirteen years of age and of females of any age is prohibited.

A special investigation of the number of children and young persons employed in textile factories and in laundries was made by the Factory Inspectors for the year 1901, showing that the total number of persons employed was 1,120,439, of which the number of children and young persons was twenty-four per cent.

The annual report of the Chief Inspector of Factories and Workshops of the United Kingdom for 1906 gives many interesting statistics. The number of establishments under inspection was 255,189, excluding docks, warehouses, buildings or domestic workshops.

The number of employees was approximately 4,950,000. During the year 1906 the number of children examined for certificates of fitness for employment in factories was 390,869, of which 385,415 were certified and 5,454 were rejected. The number of industrial accidents reported was 111,904, of which 76,208 were reported to inspectors only and were of minor character, and 35,696 to certifying surgeons involving fatal and non-fatal injuries. Of the number reported to these surgeons 7,220 applied to young persons from thirteen to eighteen years, and 152 to children from twelve to fourteen years of age, a total of 7,372, or about twenty per cent. of the whole number reported.

In France, the act of March, 1900, regulates the employment of women and children in factories and mills, and controls the hours of labor in all establishments where women and children are employed. As a result, a decided diminution has been noted in recent years in establishments employing a mixed working force, for the employment of adult males alone allows the full twelve-hour day under the law of 1848, whereas under the act of 1900 the limit of a day's work is ten hours. The number of establishments included in the report of the Bureau of Labor of the French Government for 1905 was 511,783, employing 3,726,578 persons, of whom 300,988 were males under eighteen years, and 264,650 were females under eighteen years. The total number of accidents reported was 259,882, including fatal and non-fatal injuries. Of this number, accidents to employees under eighteen years of age amounted to 21,900, or nearly eight and one-half per cent. of the total. Children must have completed their thirteenth year, and have finished a common school course of education before they may be employed in any manufacturing industry in France. Children under sixteen years of age may be required to undergo a physical examination before beginning work in certain occupations. Children under eighteen must obtain certificates showing age, schooling qualifications and physical fitness to perform the work at which they wish to be employed. No female of any age may be employed in work underground.

In Germany, the labor of children is regulated by the industrial code as amended June, 1900; by the ordinance of the Federal Council of July, 1900, and by the law of March, 1903. Children under thirteen years, or if over thirteen, who have not completed the common school course, may not be employed in factories, mines, building

operations and in workshops designated by law or decree as unsuited to such employment. Children over twelve years of age may be employed in workshops not otherwise prohibited, also in commercial or transportation enterprises, or in hotels and restaurants. Children over ten years of age, if related to the employer by blood to the third degree, or legally under his control, may be employed under the same conditions subject to the authority of the Federal Council and local officials. No female of any age may be employed underground. Certificates must be secured by all young persons before accepting employment, and the employer must file with the local police officials a statement showing the location of the establishment; the number of children to be employed; the character of the work they are to do; the hours of labor, and the time of rest periods.

The report of the Factory Inspectors of the German Empire for the year 1905 shows that 226,565 establishments were reported, employing 5,607,657 persons, of which number there were 382,264 young persons from fourteen to sixteen years, and 10,245 children under fourteen years, the percentage of children employed being about seven per cent. of the whole number of employees.

The Italian Government published in 1906 the report of the Bureau of Statistics, giving data that had been collected by the Bureau between the years 1885 and 1903. The number of establishments covered by the report was 117,407, employing 1,400,157 persons. Of this number there were 79,415 males and 118,191 females of fifteen years or under, making a total of 197,606, or about fourteen per cent. of the entire number of employees. This is the only one of the Great European nations where the number of female children employed exceeds the number of male working children. This situation is accounted for largely by the fact that about 67,000 girls are employed in the textile industries alone, or nearly one-third of the entire number of girls employed under fifteen years of age. Child labor in Italy is regulated by the law of June, 1902, and the administrative decree of January, 1903. The minimum age of employment is twelve years for factories, shops and surface work, and fourteen years for males only in underground work. No child under fifteen years of age, or minor female may be employed until a certificate has been secured, showing the proper qualifications as to age, health and education.

Austria regulates the labor of children by the laws of June,

1884, and March, 1885. Children under twelve years of age are not to be employed in workshops. Children from twelve to fourteen years of age may be employed only in such work as will not injure their physical development or prevent school attendance. Children under fourteen years of age are not to be employed in factories, and from fourteen to sixteen years may be employed only in the "lighter work" of factories, except that from twelve to fourteen years they may engage in the "lighter work" of factories under special permit of local officials. No male child under fourteen years of age may be employed in a mine, and no female of any age may work underground. In 1903 the number of employees in establishments visited by Austrian Factory Inspectors was 789,883, and of this number ninety-four per cent. were adults and six per cent. were young persons.

In Belgium child labor is regulated by the law of December, 1889, modified by royal decrees, the most important of which are the decrees of December, 1892, March and May, 1893, February, 1895, and July, 1904. The employment of children under twelve years of age in factories, mines, quarries and establishments using mechanical motive power is prohibited. Females under twenty-one may not be employed in mines. Certificates showing age, education and physical qualifications must be secured by males under sixteen and females under twenty-one before employment. The total number of employees in establishments visited by Belgian factory inspectors in 1900 was 273,363, of which children twelve to sixteen years numbered 32,591, or about twelve per cent.

In Switzerland children under fourteen years of age may not be employed in factories, and, by special decree, the employment of children under sixteen years of age is prohibited in establishments using saws and similar machinery, or in work connected with explosives, harmful chemicals, or processes where much dust is produced. The total number of employees in all manufacturing industries of Switzerland in 1901 was 242,534, and about fifteen per cent. of this number were children fourteen to eighteen years of age.

America, the refuge for the downtrodden and oppressed, the magic name that fires with boundless enthusiasm the mind of every man and woman here assembled; admired and respected of all other nations, what has this great country accomplished for the prohibition of child labor and the prevention of accidents to working children?

Throughout the length and breadth of this "sweet land of liberty," from the rock-ribbed coast of New England, with its ever busy hum of almost ceaseless toil, to where the gleaming waters of the Pacific softly ebb and flow along the verdant shores of our glorious West, everywhere in this, "our own, our native land," echoes the urgent appeal for help from half a million children, illiterate, helpless, overworked and underfed. How have we responded to the call!

On January 1, 1909, in every state and territory of the United States, excepting the District of Columbia, Nevada, New Mexico and Hawaii, laws were in force regulating the age of child labor under varying conditions and with numerous exemptions. Most of you are familiar with these laws through articles, addresses and reports printed under the auspices of the National Child Labor Committee. While some of the laws have undeniably improved conditions to a marked degree as regards the employment of children of immature age, no one will attempt to claim that the work has more than started. Accidents to working children are due largely to illiteracy, and the incapacity to understand and appreciate the dangerous features of industrial life. The failure to read and comprehend rules and warning signs in factories is one of the most prolific sources of injury. Another frequent cause is the inclination to play around dangerous machinery, "skylarking," as factory superintendents call it, which is oftentimes attended with tragic results. I recall a case that came under my personal observation less than six months ago, where a boy sixteen years of age, in attempting to show some of his young fellow-employees how rapidly he could force sheets of cardboard through a press, caught his hand between the rolls, and before the power could be shut off his arm was crushed almost to the shoulder and had to be amputated in order to save his life.

In another case a man who was employed in a large rolling mill secured a position for his thirteen-year-old boy on the rolls, rolling steel bars. This boy got possession of a small hand mirror and amused himself by flashing the sunlight into the eyes of the men working near him. While doing this, on one occasion, he failed to turn in time to catch a bar when it came through the rolls. The red-hot bar struck the ground at his feet, coming in contact with one of his legs, and burned off the foot at the ankle.

Perhaps the most usual cause of accidents is the lack of experience of the operator and the want of proper instruction from the foreman or superintendent. In the majority of serious cases with which I have been concerned, the injured child had been employed only a few days or weeks, sometimes only a few hours, and was utterly lacking in experience, education, skill or capacity to undertake the work. The inevitable result followed, generally the loss of one or more fingers, oftentimes the whole hand, occasionally the loss of an arm.

To illustrate: in Tennessee, a colored boy, presumed to be fourteen years of age, but afterwards proven to be only thirteen, secured employment as the off-bearer on a saw, but received no instructions as to work, or any warnings as to the dangers. On the second day of his employment he crawled under the saw table, and his left arm was terribly mangled by the saw.

In a case in Ohio a boy scarcely fifteen years of age was set to work in a wood-working plant, where his only duty was to carry away the material cut off by a saw nearly six feet in diameter. Having seen the operator of the saw endeavor to overcome the momentum after the power was shut off by pressing against the side of the saw with a stick, this boy attempted to do the same thing, which resulted in the loss of his right arm near the shoulder.

In a case in Pennsylvania, a boy twelve years of age was employed to feed pieces of steel through a set of rolls while the same were in motion. Not being informed of the danger of this work, and being ignorant of the ordinary hazard of such employment, one of the rags with which he was working was caught into the rolls, and his left hand and arm were drawn into the rolls and so mangled as to necessitate the amputation of the arm about half way between the wrist and elbow.

From the state of Washington, a case is reported of a boy fourteen years of age, employed in a logging camp in which his father was superintendent. In spite of this fact, the boy was not properly warned as to the dangers of the work, and was injured so severely that it became necessary to amputate one of his legs at the thigh. Such accidents are not confined to factories or mills, for a case is reported from Rhode Island where a boy under sixteen years of age was employed in the laundry room of a department store, and his duties were to run the washer and extractor. While taking a

blanket from the machine in some way his arm became caught, crushing it so badly that it had to be amputated. A suit for \$15,000 was promptly begun, and is still unsettled; the plaintiff's claim is \$4,000.

Mr. Frederick L. Hoffman, in his valuable article on "Industrial Accidents," reported in Bulletin 78 of the Federal Bureau of Labor just issued, states that in 1908, "upon a conservative estimate, the total mortality from accidents in the United States among adult male wage-earners is between 30,000 and 35,000, of which it should not be impossible to save at least one-third, and perhaps one-half, by intelligent and rational methods of factory inspection, legislation and control. In addition, there were approximately not much less than two million non-fatal accidents, that not only involve a vast amount of human suffering and sorrow, but materially curtail the normal longevity among those exposed to the often needless risk of industrial casualties." These figures refer mainly to accidents happening to working adults, but there is an increasing percentage of such accidents to working children, although, unfortunately, neither the statistics of the Federal Government nor of the State Bureaus of Labor can give us the figures at the present time with any degree of certainty or completeness.

While statistics are not available for the whole country showing the percentage of working children, we find from the twelfth census of the United States that the ten states employing the greatest number of children under sixteen years of age were Pennsylvania, New York, Massachusetts, Illinois, North Carolina, South Carolina, New Jersey, Georgia, Maryland and Wisconsin. Pennsylvania ranks first, with over 33,000, and Wisconsin last, with nearly 6,000. It is interesting to note that this list comprises four Eastern, four Southern and two Western states, so that as between the North and the South "honors are easy" on this question.

The status of legislation regulating the age of employment is not clear or satisfactory. The minimum age varies from ten years in some states to sixteen years in others, subject to numerous qualifications and exemptions. For example, the laws of Massachusetts prohibit the employment of children under fourteen years of age in manufacturing and mercantile establishments, and no child may be employed without an age and schooling certificate. These laws are enforced by a large corps of inspectors responsible to a common-

wealth that administers its public affairs on the theory of the greatest good to the greatest number, and as a result, it is rare to find a child employed without a certificate in Massachusetts. On the other hand, Illinois, with over 10,000 children employed under sixteen years of age, according to the twelfth census, does not take the same jealous care of its young workers. While the laws of Illinois prohibit the employment of children under fourteen years of age in factories, stores and mines, and require an age certificate to be placed on file in the establishments employing children, violations are frequent, both as to age and certificates.

These conditions are due partly to the fact that a large percentage of the working children in Illinois are of foreign parentage, and many of these parents have no scruples about obtaining age certificates upon false statements and representations, resorting to various subterfuges to attain the desired end.

The Commissioner of Labor for the State of Minnesota, in his report for 1905-1906, strikes the keynote of the situation when he says that what is needed in his state "is a better understanding of the intentions of the Child Labor Law; more uniformity in its enforcement, and a better co-operation of the different official bodies charged with the execution of the act."

What say the South on this great social and economic question that strikes so deep at the vital elements of its industrial life? We have heard often of the large percentage of young children employed in Southern mills, and we are led to believe that these conditions are acquiesced in with the utmost complacency by the officials of many of these states. It is most gratifying, therefore, to record the sentiments expressed by the Commissioner of Labor of Kentucky in his report for 1905:

"Humanity, charity, education, civilization demand that the system of making little children industrial slaves be abolished. Greedy brutes, whether capitalists or parents, should be compelled to respect the rights of little ones to develop, at least until the age of sixteen, their health and character. It is a reform that can with inestimable value to a nation be prosecuted by a nation."

The number of factories covered by this report is 1095, of which 504 employ no children, leaving 591 factories employing 5360 children. A gratifying feature of the situation in Kentucky is the fact that of 218 accidents tabulated from the two districts into which the state is divided, twenty-six accidents only were recorded to

children of sixteen years or under, which is less than twelve and one half per cent. of the total accidents reported.

Time will not permit an enumeration of the earnest, faithful services rendered year after year by these loyal servants of the nation in charge of the bureaus of labor in the different states in the work of enforcing the child labor laws that are so often conflicting and contradictory. Credit is also due the Federal Government for the interest taken in this subject by the Department of Commerce and Labor, and especially for the investigations now going on. Within two weeks a bill has been introduced in Congress providing for the establishing of a National Children's Bureau to investigate and report upon all questions affecting the welfare, character, health and training of children including premature employment, dangerous occupations and accidents.

The courts, too, are doing their duty in most instances by upholding child labor laws and compelling compliance with their provisions. From far Oregon comes a decision of the Supreme Court in the case of *State vs. Shorey*, and I quote from the opinion the following: "It is competent for the state to forbid the employment of children in certain callings, merely because it believes such prohibition to be for their best interest, although the prohibited employment does not involve a direct danger to morals, decency, or of life or limb. Such legislation is not an unlawful interference with the parents' control over the child or right to its labor, nor with the liberty of the child." Other decisions sustaining these laws have been recently rendered by the Supreme Court of Pennsylvania in the case of *Stehle et al. vs. Jaeger Automatic Machine Company*, where a boy under fourteen years of age was injured while employed contrary to law; by the Supreme Court of North Carolina in the case of *Starnes vs. Albion Manufacturing Company*, involving injuries to a child under ten years of age; by the Supreme Court, of Michigan, in the case of *Van Wyck vs. Dickinson*, for an accident to a child fifteen years of age; by the Supreme Court of California, in the case of *ex parte Weber*; by the Supreme Court of Georgia, in the case of *Platt vs. Southern Photo Material Company*, where an injured child thirteen years of age had been employed without a certificate, and by the Supreme Court of New Jersey, in the case of *Bryant vs. Skillman Hardware Company*, for injuries to a child under fourteen years of age.

In conclusion, I cannot refrain from a passing reference to the silent but effective help rendered by the business with which I have the honor to be associated, namely, the insurance of Employers' Liability in factories, mills and mercantile establishments. Every policy insuring an employer of labor against loss from liability for accidents to his employees contains a clause exempting the insurance company from liability in case of an accident to or caused by any child employed contrary to law. The great force of this provision and its widespread influence as a deterrent against child labor is at once apparent. Legislation will correct this evil eventually, and public opinion can create a strong sentiment that will tend more and more to ameliorate the condition of working children, but selfish considerations of economy will ever be the most potent argument in favor of the employment of persons of legal age. Employers will come to realize in time, as many of them have already been convinced, that they cannot afford to violate the child labor laws of their state, for they not only incur a liability for damages thereby, but are unable to secure insurance to protect them against loss in such cases.

Thus it is that history repeats itself, for the origin of child labor grew out of the sordid desire of employers to secure labor at the lowest possible cost, regardless of the law of nature or of man, and the same selfish considerations will serve to exterminate child labor when it is no longer profitable to use it. Far better that we should consider the moral and intellectual side of this question, rather than the purely material side, for it is only in that way that we can hope to build up individual, as well as national, character.

It was more than three-quarters of a century before the manufacturers, workmen, economists and legislators of Europe and America realized the fallacy of the doctrine that the limitation of the age of employment of children and the reduction of the hours of labor would result in reduction of wages, or increase in the price of manufactured goods, or perhaps both. As a matter of fact, the ultimate end of factory legislation is to create conditions of existence below which the working population of any community shall not decline. Only a certain amount of labor is possible to be, and is actually got out of men, women and children within the ordinary and reasonable limits of a working day,

and the object of the regulations in factory acts is to create the greatest degree of efficiency and productiveness in every working unit. To employ children below the natural and normal age of creative ability, or to work them beyond the limits of their physical endurance, is to impair the commercial value of their efforts, and to incur a debt with nature that neither the child nor the community may be able to liquidate in after years.

UNIFORM SYSTEMS OF CHILD LABOR STATISTICS

BY HON. JOHN WILLIAMS,
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Not long ago I heard a speaker say that one of the distinguishing features in the history of social progress in the twentieth century would be the place given to the consideration of the rights of children. Whether or not such prophecy will be fulfilled we cannot tell. But I feel that I am absolutely safe in saying that with respect to the conservation of the secular interests of our children, the history of the century will not record a single backward step. The intensity of the movement of which this Conference is but a manifestation, is a positive guarantee that in our country the exploitation of child labor is doomed. The trend is irresistible and the future is full of promise. The emancipation of the child will be accomplished.

However, as we follow the account given of the conflict between the representatives of this social movement and those who represent the employers of children, we realize that the battle is not yet won. When we come to examine the statutes of our several states we find that the subject of child labor has been sadly neglected in many of them. This fact is a stain upon our civilization and is sufficient justification for the existence of the National Child Labor Committee. The treasure expended in the maintenance of intensive work along this line will in the future bring incalculable returns. The enactment of laws to restrict and to regulate the employment of children, and the creation of state agencies to enforce such laws, are two of the principal objects undertaken by Child Labor Committees. And when that is done, there arises the necessity of observing the enforcement of those laws, their effect upon the problem; the need of amendment and improvement in order to meet new conditions must be carefully considered—in short, every step must be taken deliberately and with a set purpose. In order that every dollar expended and every ounce of energy applied be made to yield a maximum return, I conceive it to be the duty of all who in any way have to do with the campaign so to arrange their work as to

dovetail with the effort of others, so that there shall be no waste. I would apply this obligation to every agency, official and unofficial.

Two-thirds of the states have provided for some degree or method of factory inspection, and one of the chief duties of a factory inspector is the enforcement of child labor laws in the manufacturing establishments within his jurisdiction. The proper exercise of this governmental function is important, in the first place, to the men, women and children whose immediate employment is affected thereby. So far as the individual interest of each such employee is concerned, it is immaterial, if the administration of the factory law be effective, whether or not the outside world knows anything about the work done. The record of the inspector's activity is of no moment to them if the conditions of their employment are properly regulated as provided by law. But the work of a factory inspector is important in a broader sense than that. It sustains a direct relation to the progress of society. Recognizing this fact, laws creating the office of factory inspector provide that such official shall preserve and present annually to some higher authority a record or report of his official acts. These reports are printed and distributed, and through them those who are sufficiently interested can gain some idea of the services rendered.

The factory inspector is the only government agent, who, during the years intervening between federal or state census, has authority to enter our manufacturing places and obtain certain information, which, when properly collated, is of great practical value as a means to determine the development and growth of industry. That the value of his reports is determined by the methods employed to present the facts will be readily admitted. If the scheme of the report is clumsy and unscientific, its value is impaired, for in this age when everything moves so rapidly, neither the student, the social worker, nor the statesman can afford the time to dig information, valuable in itself, which is hidden under a mass of ill-arranged material, and no factory inspector should permit himself to follow a plan of reports that produces discouragement and despair in the mind of the seeker after knowledge.

There is no phase of the factory inspector's work concerning which it is more important that precise information be available than the facts relating to the administration of laws regulating child labor, and it is to the methods employed, or that should be em-

ployed, to record those facts that I shall devote the remainder of my time.

It has been my privilege—somewhat painful in a few cases—to examine the reports of state factory inspectors with a view of securing such information as I thought such reports should contain, as would enable me to gauge the problem from a national standpoint. But, as many of you know, I was doomed to disappointment. Some factory inspectors have contented themselves with a brief textual reference to the subject, and have left us completely in the dark as to the extent of the problem within their jurisdiction. Others have given us apparently complete data, but the arrangement thereof is so ill-adapted to the purposes for which we read the reports as to be almost worthless. For obvious reasons, however, I cannot undertake any sort of a comparative statement of the methods employed by the several departments of inspection in presenting the facts of child labor. I shall present my own ideas of the manner in which a factory inspector should give to the world in condensed and intelligible form the record of the manufacturers of his state in respect to the employment of children.

To begin with, let me say that I speak now as a factory inspector—as an officer whose primary duty is to enforce enactments for the protection of factory workers. I am not a statistician, but when I come to prepare my report I find that I need to use numbers—I want to convey clearly and briefly certain information regarding my work which is of sufficient importance to be preserved; so, perforce of circumstances, I must employ the methods of the man who speaks not in words but in numerals. If I do not adopt this plan, I must leave out much that is of value or string out my report to inordinate lengths. In either case it would be practically valueless. My desire is to present the facts so simply and so clearly that the most ordinary mind can grasp their significance. This can be done in regard to child labor statistics which are gathered, or should be gathered, by the factory inspectors of the country. Every inspector who is neglecting entirely the statistics of factories is falling far short of his opportunities.

The social value of statistics covering the following group of related facts can be quite fully appreciated by those who make a study of industrial conditions and progress:

Number of establishments inspected.

Number of employees at time of inspection.

Number of adult males.

Number of adult females (over sixteen).

Number of male minors (sixteen to eighteen).

Number of boys (fourteen to sixteen).

Number of girls (fourteen to sixteen).

Number of children under fourteen.

It is regrettable that in a few states the factory inspector's report is devoid of any statistical statement. Such reports have scarcely any value whatsoever. The text may be well written, but the absence of statistical grouping of basic facts makes us feel that the fine descriptive text is like a house built without a foundation—we do not know when it may tumble about our ears.

To secure the statistical information above mentioned is a simple problem for the members of our field staff. It is incorporated in the report for each factory and sent to the main office. The work of tabulation can be done thereafter, and may be confined to comparatively simple tables, or, if scientific statisticians are available, more minute and elaborate tables might be worked out. No valid excuse can be given by those inspectors, who, year after year, inflict upon the public the unsatisfactory task of reading a mass of generalities which are unsupported by figures showing the facts supposedly described. I imagine that I hear someone say it is quite easy for the Commissioner of Labor of New York to urge that factory inspectors devote more time to the preparation of statistical tables for their reports, for he has a corps of trained statisticians to perform such service for his bureau of factory inspection, while the factory inspectors in other states are denied the services of even one person experienced in statistical work. It is probably true that no other state department of factory inspection is so fortunate as that of the state of New York. We have an excellent bureau of statistics; yet not all of the statistical tables which appear in the report of our bureau of factory inspection are prepared by the bureau of statistics. I want to state now that, in my opinion, no factory inspector can escape the charge that because his reports do not contain intelligible statistical information, they are deficient in value and interest, by saying that his appropriations would not permit the hiring of persons to prepare such tables. Any person who is intelligent enough to be a factory inspector—who plans and

directs the administration of the laws committed to his department—who possesses a mind keen enough to grasp the facts brought to light through the service, so as to be able to prepare the text of his report—surely can very readily devise simple statistical tables to contain in condensed form the information regularly gathered by this field staff. This being done, any ordinary clerk can carry out the scheme. Such condensed tables would enhance the value of reports of inspection.

When we consider the intense public interest in the subject of child labor, it is astonishing how unresponsive some factory inspectors have been and how meager and uninteresting are the statistics bearing upon the subject as contained in their reports. A public officer whose duty it is to enforce laws for the amelioration of labor should not stifle his humane instincts. As a matter of fact, his close contact with the ills and woes of those who toil should stimulate him to greater activity—to a keener sense of his obligation to see that the full benefit of all laws for their protection should accrue to them. When a factory inspector reaches that stage in his official career as to be indifferent or callous and unresponsive to a reasonable and intelligent and wisely directed public sentiment in regard to matters affecting his official duties, he has outlived his public usefulness.

The National Child Labor Committee realizes the importance of uniform child labor statistics. Therefore, what I have to say upon the subject is not intended as an argument addressed to those participating in this conference. I want to point out, however, a line of duty in respect to this matter which opens out to you, namely, that an earnest effort be made to lead every department of factory inspection to consider very carefully the advisability of agreeing upon some plan of uniform statistics whereby the problem can be broadly and correctly gauged. It seems to me that this Committee could, with entire propriety, formulate a definite plan and have it submitted to the official head of each state department charged with the enforcement of child labor laws, with the request that the plan or system be adopted. It is idle for us to criticise the shortcomings of governmental agents unless we are prepared to go farther and make our criticism constructive. We must suggest methods of improvement; otherwise, our criticism assumes the character of faultfinding.

I hope I may be pardoned for presuming to think that the statistics of child labor, published by the New York Department of Labor, furnish as satisfactory and as comprehensive a statement of the problem as can be found in any official report published in this country. Our tables are quite simple and do not require for their preparation an advanced degree of statistical skill. At the close of our departmental year, within one week after all the inspection reports covering the work done on the last day of the year are received at the office, we can state definitely the full extent of the problem of child labor in each county in the state. This record is arranged for our report in tabular form and shows how many boys and girls fourteen to sixteen were found at work legally, and how many were illegally employed; we also show how many boys and girls under fourteen were at work. By means of this table we centre the attention of our people upon the extent of child labor in our industrial communities, thereby emphasizing the need of vigilance on the part of the friends of the children wherever it appears that the ratio of children to the adult factory workers is abnormally high.

The preparation of this special table is quite simple and the work is done wholly within the bureau of factory inspection. Of course, it will be understood that the data for the table are gathered by the field staff, and are sent to us on special slips provided for that purpose. Upon this slip the deputy factory inspector, if there be occasion for such a course, separates the children employed in each factory into three groups, namely, legally employed, illegally employed, and under fourteen years of age. This slip is really an analysis of the children reported at work in the regular inspection schedule. When received they are filed away by counties until the end of the year, when they are available for use as heretofore mentioned. Statistics of child labor grouped by industries are also of supreme importance, for by no other method can the relative degree of responsibility be properly determined and fixed. The question of restricting the freedom of children to engage in certain occupations is attracting more and more attention, and nobody doubts the need of its serious consideration; but before we undertake restrictive legislation affecting a given industry, we ought to know whether or not children are engaged in it.

Nothing should be taken for granted. A spirit of absolute

fairness should be manifested towards every manufacturing business. It is the duty of every factory inspector to furnish his people with a clear statement of the number of children at work in each industry represented in the manufacturing interests of his state. I will admit that this would involve statistical work of more intricate and technical character, but as to its importance and value there can be but one opinion.

New York publishes statistical tables showing the facts just mentioned. We can tell how many children were at work in a given industry in any stated year. I also conceive this grouping by industries to be important to those who appear before legislative committees in states where efforts are being made to secure the enactment of child labor laws, especially so if the representatives of certain interests argue against the proposed laws on the ground that such enactments would paralyze their industries. If it can be shown that similar industries have been able to survive restrictive legislation in one state, it can be urged that they ought to be able to do so in another. Thus the arguments of the opposition could be successfully met. I do not believe we are very much concerned whether John Smith, who manufactures carpets, employs five, ten or twenty children, except when it is alleged that he employs them illegally. But we are interested in the question as to how many children he and all other manufacturers of carpets in our state are employing, and it is our business to know it and to report it.

Another feature of the report of the factory inspector which vitally affects the problem of child labor is that relating to punitive activity. In New York we have had a fair trial of both methods of law enforcement. Our experience proved that the moral suasion idea as applied to our work was a total failure. There is one way to enforce the law—a fair warning, then a grim demonstration of the fact that the note of warning was just exactly what it purported to be. I am not sure that uniform statistics can be prepared in respect to this phase of our work because of the great variety in the provisions of law relating to child employment on the one hand, and on the other the very striking differences in judicial procedure in the several states. I think, however, that a detailed statement in tabular form, giving the name and address of the defendant, nature of violation, and result of proceedings, should be printed in the factory inspector's report. Those who deliberately

exploit children should be criminally prosecuted, and in addition, their unworthy practices should be exposed in the printed permanent record of the department of inspection. A factory inspector cannot permit himself to be under any sort of obligation to shield violators of the law.

I cannot close my remarks without expressing the hope that in the near future each Commonwealth will have awakened to its full responsibilities with respect to the protection of its children. It is generally conceded that age limit and educational tests, as a bases for determining the right of a child to work in a factory, are unscientific and unreliable. The mere fact that a child has reached a certain age is no proof of its physical fitness to engage in the stern realities of the conflict or struggle for a livelihood. New York has authorized the employment of a medical inspector of factories. We expect to utilize the services of such officer to observe the children who are employed in certain industries, and to gather such data regarding their physical condition and development as will prove helpful in solving the problem. During the year just ended he recorded examinations of a number of children of different nationalities, and the results, while by no means conclusive, point to the great complexity of the whole subject, owing to the cosmopolitan character of our population. I am confident that in due time the introduction of medical science into the intensely practical field of factory inspection will leave an indelible impression.

I predict that as New York demonstrates the value of this new departure, other states will follow her lead. I believe the time will soon come when a conference may be called of the medical inspectors of factories representing every industrial state. Such a conference would wield nation-wide influence in respect to factory sanitation, female labor, and particularly the regulation of child labor. I think our report just published demonstrates clearly that from a sanitary standpoint a wise step was taken when provision was made for a medical inspector. We feel assured that our work on behalf of the children, along the lines indicated herein, will furnish not only a complete justification for the money expended, but will point out the need of extension in order that the whole field be promptly and properly covered.

I have not kept very closely to my subject. I was asked to

outline a scheme of uniform child labor statistics. I have not presumed to do so. I have tried to suggest a few things in regard to an important phase of the question. I have undertaken to point out the duty of the National Child Labor Committee in relation to this matter. If I have succeeded in awakening, even in a small degree, a new sort of interest in the dry side of the child-labor question, then I shall feel that my trip to the city of Chicago was not in vain. And should this Committee see fit to undertake a campaign for uniform statistics. I shall be happy to collaborate in the preparation of a plan to be urged upon the chief factory inspectors. I am personally satisfied that a large majority of our factory inspectors are in full sympathy with the work of this splendid organization.

As a closing word, I assume it to be unnecessary for me, while discussing the importance of uniform systems of statistics of child labor, to emphasize the great need of comparative uniformity in the laws relating to the same subject.

THE PRESENT SITUATION IN ILLINOIS

BY EDGAR T. DAVIES,
Chief State Factory Inspector of Illinois.

Any intelligent discussion of the present situation in Illinois, with regard to child labor, must necessarily be prefaced by a brief retrospect and a comparison between present and past conditions.

While the Illinois Child Labor Law, by reason of the excellence of its provisions and the beneficent results accomplished under its enforcement, is generally known to students of the Child Labor problem, it would seem advisable at the outset to briefly recall its more salient features. The present Child Labor Law, which became effective July 1, 1903.

(1) Prohibits the employment of minors under the age of fourteen years.

(2) Abolishes night work for all minors under the age of sixteen years.

(3) Limits the employment of children to eight hours per day.

(4) Requires an educational test consisting of an ability to read and write legibly simple sentences, and provides that in the absence of such ability the child must go to night school if he wishes to be employed.

(5) Prohibits the employment of minors under the age of sixteen years in any occupation which may be considered hazardous or dangerous to the child, or which may injure its health or morals, and the law specifically prescribes what are considered hazardous and dangerous employments.

(6) It makes it unlawful for an employer to employ children under sixteen years of age in any place of amusement where intoxicating liquors are sold.

(7) It prohibits the employment of children under sixteen years of age on the theatrical stage after seven o'clock at night.

(8) It abolishes the notary public affidavit as means of procuring employment for children under sixteen.

(9) Provides that a fine of \$5.00 to \$25.00 be imposed upon any parent who permits a child to be employed contrary to the pro-

visions of the law, and that a fine of \$5.00 to \$100.00 be imposed upon any employer violating the law, such employer to stand committed until such fine and costs are paid. This, in brief, is the Illinois Child Labor Law.

What were the conditions in 1902, previous to the enactment of this law, and what are the conditions to-day?

	Inspections.	Total Employees.	Children.	Per cent. of Children to total Employees.
1908	84,997	720,203	9,925	1.3
1902	19,535	511,902	19,225	3.7
Increase	65,462	208,301		
Decrease			9,300	Child labor reduced over 52 per cent.

The following industries in Chicago show a remarkable decrease since 1902:

Industry	Children Employed 1902.	Children Employed 1908.	Percentage Decrease.
Glass	360	37	90
Bakeries	232	56	75
Cigars and cigarettes	167	28	88
Clothing	2641	1504	45
Paper box and bag	606	177	68
Laundry	280	59	80
Confections	434	147	66
Wood working	1474	374	75
Leather goods	468	41	89

It is interesting to know what the reduction in child labor has been in some of the different stores and factories in Chicago, and your attention is called to the following:

Name.	Children Employed 1901.	Children Employed 1908.
Boston Store	275	173
The Fair	500	420
Marshall Field & Co.	227	152
A. M. Rothschild & Co.	237	119
F. W. Rueckheim (candy factory)	181	95
National Biscuit Co.	304	3
American Can Co.	135	32
Swift and Company	86	45
Nelson Morris & Co.	89	27
Libby-McNeil & Libby	74	0
Armour and Company	160	45

So much for Chicago. Now we will look to the territory outside of the city of Chicago and Cook County. To give an illustration of the reduction in child labor in the glass factories in Illinois I refer to the following: Illinois Glass Company, Alton, employed 377 children under the age of sixteen in 1901; to-day they employ 73. Adolphus Busch Glass Company, Belleville, employed 109 in 1901, and now employ eighty-two. Streator Bottle and Glass Company have ten children under sixteen in their employ now, while in 1901 there were 257. American Bottle Company, Streator, employ two children to-day, and in 1901 there were fifteen. Headly Glass Company, of Danville, now employ ten, and in 1904 they employed thirty. The above statistics are but a few of the many good results brought about through the enforcement of the law. In 1893 the percentage of children employed in Illinois was 8.2; the percentage has been reduced to 1.3. We make the statement, and we make it advisedly, that we have the lowest percentage of child labor of any state in the Union. In making this statement, I include not only factories and workshops, but every other character of places of employment, above and beneath the ground.

Child labor has been driven from the coal mines of Illinois. This was accomplished by my interpretation of the clause of the law governing hazardous employment—an interpretation that was combatted by the Coal Operators' Association. A test case was subsequently brought in the courts, in which I was sustained, and as a result 2,200 children were emancipated from a life of underground servitude. Consequently to-day no child under the age of sixteen can work in a coal mine in Illinois.

These results could not have been achieved if our efforts had been confined to moral suasion. Persuasion is a divine and beautiful thing, but the enforced law, with a penalty attached, is more effective, as you will see by the comparison of figures, as follows:

In 1893, the year the first child labor law was in force, it having taken effect July 1, of that year, there were 2,452 inspections, and of this number there were thirty-nine prosecutions for violation of the law.

In 1901, the year I took office, there were 18,913 inspections, or an increase of 16,461 over the year 1893, which is 87 per cent. Of this number there were 719 prosecutions, or an increase in prosecutions of 94 per cent.

In 1908 there were 84,997 inspections, or an increase over 1901 of 66,084, which is 77 per cent. The number of prosecutions for 1908 were 473, which is a decrease of 34 per cent. in prosecutions.

Thus our statistics show that, while our inspections have greatly increased, only 473 of this number (84,997) have been prosecuted, which demonstrates that employers are becoming educated and are complying with the law's requirements. Consequently, the law has been effective and has been of great protection to the children of our state. In 1901 there were forty-one children employed to every 1,000 employees; in 1908 there were thirteen children to every 1,000 employees.

Ours is the only department which has been able to report, during the past five or six years, the actual percentage of the children at work, because the Illinois Department of Factory Inspection covers every character of establishment in the state.

Perhaps the greatest benefit of the many achieved by the present law, is the effective prohibition against the employment of minors under the age of fourteen years. Under the old law thousands of small children were employed in the various industrial plants throughout the state, which employment defied the very laws of nature, and robbed these little ones of their birthright of childhood, while more fortunate children were enjoying the advantages of good homes, wholesome surroundings and careful nurture and education. Thousands of these little victims of child labor were daily offered as a sacrifice, either to the greed of the employer, or to the ignorance and inhumanity of their parents. Furthermore, many under the age of fourteen years were not only employed during the day, but hundreds were oftentimes compelled to work all night in glass factories and foundries and similar institutions, wearing away their young lives before the hot glare of furnaces and stunting their growth by the unnatural influences under which they were obliged to live and labor.

An enlightened conscience demanded, and obtained, the provision of the new law, providing that children between the ages of fourteen and sixteen years should not be permitted to work between the hours of seven o'clock p. m. and seven o'clock a. m.

The statute also recognized the justice of the claim of all friends of child labor legislation, that if eight hours was long enough for a man to work, it should also be long enough for a child

to work—at least, at arduous and incessant toil—which is the third important provision of the child labor law. The eight-hour clause of our law applies to every day and every month of the year. Some states permit the employment of children, without limit as to hours, but we protest that, as has been done in Illinois, childhood should be protected at *all* seasons—that the need of the child is greater than the exigency of the business. The child life is a consideration immeasurably more important than commercial gain brought about by the sacrifice of the child's life, health, morals and happiness.

The present child labor law, in force since July 1, 1903, strictly prohibits the employment of a boy or girl between the ages of fourteen and sixteen, at any occupation whatsoever, for more than eight hours a day.

Through my experience as the chief officer in enforcing the old, as well as the present law, I am somewhat inclined to believe that the interest of the minor could best be conserved if, in some of the lighter occupations, in which the work is not of a burdensome nature, the limitation on the hours might be changed, if the changing of the law could be made without affecting the constitutionality of the eight-hour provision.

There is great need of uniform laws governing child labor in the various states, not only for the better protection of children, but for the purpose of preventing the manufacturer in one state from having the advantage over a competitor in another state, because the laws governing child labor are different in the respective states. At present we have a diversity of laws. There is no uniformity of age limit, required number of weeks in school attendance, proof of age and educational test. There is also a lack in many states of that great spirit of humanity and benevolence that should place a restriction upon the hours of labor of children, and upon the employment of juvenile wage earners in hazardous vocations.

No child—native or foreign-born—should be permitted to go to work unless it is able to read and write in the English language, and can pass a reasonable educational test.

In the enactment of all child labor laws, employment should be prohibitive for any girl under the age of sixteen in any vocation where she is compelled to remain standing. The employment of minors at night should be absolutely prohibited.

The employment of children in theatres should be regulated,

and no girl under the age of eighteen years should be permitted to be employed as a chorus girl, and no boy or girl under the age of eighteen years should be permitted to perform or be employed in any capacity in a concert hall, or place of amusement where intoxicating liquors are sold.

Factory inspectors should be endowed with greater police power. There are many establishments where employers are defiant, others who seek to evade the law on technicalities, and frequently the inspector will find a boy or girl employed at occupations where their lives and limbs are in danger, or where the child's health may be injured, and not infrequently we find them employed in places where their morals might be destroyed.

In all such instances the factory inspector should have authority to immediately remove the child from employment. And as the purposes of the law are constantly being defeated, because of the inability of the inspector to disprove the statement of the child and the employer that the child is of an age beyond the application of the law, it is essential that the statutes should provide that, in cases where dispute arises regarding the true age of a child found employed contrary to the law's provisions, the burden of proof of age should rest on the parent and on the employer, and not on the state. The employed should be required to prove the child of age, rather than the inspector to prove the child is under age.

It was but natural, in preparing the draft of the Illinois Child Labor Law, that its provisions should be made specially applicable to the employer of child labor; but in the desire to reach such employers who were the chief offenders, the disposition on the part of the parent and the child to evade the law and secure employment for the child, with its consequent income for the family, was in a large measure overlooked.

The result has been, that in a surprisingly great number of cases, which have come under my observation, many well-meaning employers have suffered injustice through the connivance of the parent with the child, in representing the child's age as sixteen, or above, when such child was under sixteen. Frequently the employer has been subjected to the penalties of the law, which should have been visited upon the conniving parent. It would be well if the child labor law could be so amended that it would protect the honest employer of labor, as well as the helpless children who are employed.

Under the present law, when a child signs an application for the purpose of securing employment, and states that he is sixteen years of age, and in many instances the parent indorses the statement, the employer has no legal means of protection. He has but few reliable means of ascertaining the correct age of the child, should he doubt the child's statement.

Unscrupulous parents have discovered this weakness in the law, and have taken advantage of it, to the injustice of the employer, deceiving him with regard to the child's age, with the result that the employer has been prosecuted, while the party guilty of an intentional violation of the law, the child, parent, guardian or custodian, has too often escaped. I have given this matter much thought, because I feel it is one of the most serious objections that can be properly raised regarding the present law, in its practical operation.

I am of the opinion that it would be well to amend the present child labor law, so that the well-meaning employer might protect himself against the cupidity of the child, its parent, guardian or custodian. There are numerous ways in which the law could be amended so as to accomplish this purpose. If the law were amended so as to require parents, guardians, or custodians of children, between the ages of sixteen and seventeen years, who are seeking employment, to secure a certificate as to the child's age before a Court of Record, we should have greatly improved the existing conditions.

Courts of Record exist in every county in the State, and there ought to be no reason why this plan could not be made to work admirably. The law should further provide that if the employer demands, and obtains of the child, a certificate from the Court of Record, certifying that the child is of the required age, and it later develops that the child is not of legal age, the employer shall not be held responsible or guilty of a violation of the law, but that the parent, guardian or custodian of such child, who files his application in the Court of Record for such certificate, and who furnishes the evidence of age upon which the certificate is issued, shall be deemed guilty of contempt of court; and that such parent, guardian or custodian may be summarily punished by the court by severe censure, fine or imprisonment, as for contempt of court. If such an amendment were secured and put in operation, and the courts

should vigorously enforce this provision, and punish the offending parents, guardians or custodians, either by censure, the imposition of a fine or light imprisonment, the practice of defying the purpose of the law, through the false statement of the child's age, would soon cease.

When, without the knowledge of the parent, guardian or custodian, a child misrepresents its age, in order to secure employment, I believe such child should be cited before the Juvenile or County Court, for correction and punishment, as the court may decide.

It is my opinion that every foreigner who has children should be compelled, upon arriving at our shores, to give the names and ages of all the children belonging to, or in the custody of, such immigrant, and that such immigrant should furnish to the immigration officer, proper birth records or other satisfactory evidence of the age of said children or dependents, and such immigrant should be obliged to secure from said immigration officer a proper certificate, testifying to such registration, which certificate should be kept by said immigrant at all times, as an evidence of his compliance with the Federal regulations.

One serious limitation in the scope of the Illinois Child Labor Law is its inapplicability to newsboys and girls, and other juvenile merchants who live in our streets. Our law does not apply to newsboys, because the courts hold that they are merchants in their own right. While I thoroughly believe that these street gamins are every bit as worthy of our most solicitous attention as are the children employed in the factories, I believe they should be given proper protection through the passage of a special statute covering the entire matter.

Laws of this kind have already been passed in some states, and I have prepared and presented to the last two sessions of our General Assembly a bill calculated to protect this class of child labor, but because of complicated difficulties at the time of the introduction of the bills, they have thus far failed of passage.

There has been criticism, not altogether without merit, that the legal limit in the employment of children should be based on the educational qualifications and physical fitness, rather than upon an arbitrary age. My experience has shown me that many firms who do not employ children under the age of sixteen years, employ them as soon as they become sixteen years of age, and such chil-

dren are then started at learning a trade as a common apprentice. Some change might be made as to certain classes of children above the age of fifteen years, qualified by a proper preliminary education and general physical fitness, so that they might be permitted to enter upon a proper apprenticeship, certain limitations applying, and learn a trade, though they might be within the arbitrary age limit now prescribed. In other words, children are not all alike as to physical and educational qualifications, or as to circumstances of life, and some account should be taken of these differences.

THE FORWARD STEP IN LOUISIANA

BY JEAN M. GORDON,
State Factory Inspector, New Orleans, La.

A few Sundays past I had the pleasure of hearing a very excellent sermon by Rabbi Saal, of St. Louis, in which he used the parable of the Good Samaritan to illustrate his point, and all the time he was applying it to his story I was applying it to the history of the child labor movement, putting in the place of the priest who saw the sick man, but passed by on the other side, the great organized Christian church, which, instead of bringing its united strength to bear upon this sickness of our present day civilization, passes by on the other side.

Again, as the story was told, I saw in place of the Levite, who also passed by on the other side, our great school system, with its splendid organization in every town and village and its great national and international influence, passing by on the other side instead of using its organization to make and enforce compulsory school attendance laws for the thousands of little ones who have been permitted to remain out of the schools, endangering our civilization through the illiteracy which is bound to result from such negligence.

And then I saw the National Child Labor Committee in the place of the Good Samaritan having compassion on these little ones and trying to lighten the burdens which an ignorant, selfish, self-satisfied, grasping community has laid upon our children. In thinking this question out it would seem that the organizations which had the care of the children should have been the forces which would have worked for their protection. The state, the school and the church should have been the Trinity to prevent this outrage against civilization and Christianity from ever having assumed its present proportions. The strongest reason which suggests itself to me for this lack of action is the fact that in the state, the school and the church the will of the women has not been given an opportunity to act.

Except through indirect methods the motherhood of the land has had no chance to protect what is dearer to her than all else. Had the state said it proposed to place citizenship above manufactures, had the school said an educated community was better than fine raiment or houses, had the church followed the teachings of its Great Teacher, who threatened dire results to them who did any harm unto the least of these little ones, there would have been no need for such an association as we have here to-day. But that there is need, great need, of our association is being borne in upon me more and more each day I work as a factory inspector.

Louisiana took a forward step this past year, when through legislative act a fairly good Child Labor Law was passed, but already efforts are being made by one of our largest department stores to have the entire act declared unconstitutional, thereby to side-step our forward movement.

To one who went through those seven weeks of pleading and arguing with men, most of them fathers, for a law to protect little children from the greed and neglect of those who should protect them, the merest hint that another fight is on makes the heart sick and faint, for the memory of that struggle is still fresh in our minds.

As usual, the cotton mills were the most powerful opponents, ably seconded by the canning industries. To hear the representatives of both industries, one, not knowing any better, would have been convinced that the most healthful, remunerative, educational place in the entire world in which to develop children was in a cotton mill or an oyster cannery. One fairly tingled to spend the rest of life shucking oysters or peeling shrimp.

A marvelous condition was unearthed when our Committee arrived at Baton Rouge. Our bill asked for a nine-hour work day for women and children, while another bill was introduced by the representatives of the Federation of Labor asking for a ten-hour day for women and children in mills and factory, while at the same time they introduced another bill asking for an eight-hour day for railway clerks. Of course, it is much harder work for grown men to sit in a comfortable office writing figures in a book than for women and children to stand all day watching six, eight, ten or even fifteen shuttles dashing back and forth,

getting snarled and tangled and taking many minutes to unravel, for which time lost there is no pay!

The battle raged around that nine-hour day. Finally both bills were sent to the Committee. Our bill was pigeon-holed, the Federation of Labor's bill was reported favorably with an amendment making the work day nine hours. This bill of the Federation of Labor was a striking illustration of a bill drawn in the interest of the manufacturer. In the first place, the word "mill" was conspicuous by its absence, there were absolutely no sanitary or safety regulations, and what was very significant, the penalty for any violations was so arranged that the enforcement was out of the jurisdiction of every court in the state. If that bill was drawn by a lawyer his *seeming* ignorance of the laws regulating the courts of his state should be sufficient reason to deprive him of his license, if written by a member of the House, the state should have the right to ask for his resignation—for any one so absolutely ignorant of the requirements necessary has no right to a voice in the making of laws regulating the life and health of thousands of members of society, especially that part of society whom the state does not permit to protect themselves.

Finally a compromise was effected whereby our Committee waived the nine-hour day in return for some of the provisions contained in our original bill, and on the promise of the Governor that a conference of the Governors of all the Southern states, the manufacturers, the labor organizations and representatives from the Women's Clubs would be called to agree upon a uniform work day. It gives me great pleasure to announce to this Committee that the conference will be called as soon after the Mardi Gras festivities as possible—sometime in March, I think. This compromise bill was won by just the requisite number of votes in each branch of the legislature. In the Senate we needed twenty-one votes and we got twenty-one—in the House we needed fifty-eight and we got fifty-eight. It was the most bitterly fought, longest contested bill before the legislature. It went in among the very first, and came out next to the last. In all those seven weeks a few men and women sat by the side of their very sick hope, working and talking and pleading until sometimes the very soul revolted against a state of society where it was very evident a dollar counted for more than the souls and bodies of helpless women and little children.

The results under this law are most gratifying. There is a marked change in the appearance of the children going to work; especially is this the case with the messenger boys—they are much larger and stronger looking. I want to say to the credit of our business men in New Orleans the response has been most hearty. Already we have issued 3600 certificates. The greatest trouble in getting at the correct age of the child is among the Italians. They are flocking to Louisiana by the thousands, bringing with them their dishonest methods, born into them for generations. They swear they have lost their passports, they give the wrong towns in Sicily, so it is impossible to trace their birth record. I have wondered if it would be possible to get an amendment to the immigration laws, requiring the authorities to send a list of all children under fourteen years arriving in this country to the state Factory Inspector, and from there a list be sent to each deputy inspector. I should like this point discussed.

We have several very excellent provisions in our bill. Our age certificate is all right, I know, because next to the nine-hour day it was the most bitterly fought. Another provision makes it a penalty for any employee to give warning of the approach of the inspector. Another makes it *prima facie* evidence of guilt for any child under fourteen to be seen hanging around the establishment. The bill covers every occupation but domestic and agricultural service and newsboys. Altogether we won a good bill, by a good fight, and it will take a good fight to deprive us of it. There are several men and women in Louisiana who have served long apprenticeships in charitable organizations, and we intend to prevent the need of a great deal of our present-day philanthropy by stopping the supply, and, in my opinion, child labor is one of the most fruitful sources of the need of charity.

THE DIFFICULTIES OF CHILD-LABOR LEGISLATION IN A SOUTHERN STATE

BY HON. JAMES R. McDOWELL,
Jackson, Miss.

In the discussion of the subject assigned me, I shall, of necessity, confine myself principally to the recital of those difficulties which confronted the advocates of such legislation in Mississippi during the past few years, and especially during the session of the state legislature a year ago. The National Committee has from time to time been advised of the status of child-labor legislation in other Southern states by those familiar with the subject, by reason of having personal knowledge of the many difficulties they have themselves encountered. Since Mississippi is the only Southern state to which my personal knowledge extends, I shall not attempt to discuss the situation in any other state; and since the enactment of such a law in Mississippi is recent in point of time, it may be of interest to members of the National Committee and others to be advised of some of the experiences of those of us who took a hand in the fight for the protection of the children of our state.

Mississippi is the last state in the Union to enact a child-labor law, except Oklahoma and Nevada, and be it said to the credit of Oklahoma, the legislature of that state, at its first session, enacted such a statute, but it was vetoed. The necessity for such a statute in Mississippi is not so great as in many of her sister states, principally because there are so few children employed at work which is injurious to them. There are no mines; no glass factories; no sweat shops; less than twenty cotton and woolen mills, and not more than half a dozen canning factories in which child labor is employed. There are no large cities in the state and consequently few paupers. Thus the evil is reduced to a minimum, and this condition is no doubt responsible for the long delay in the enactment of suitable statutes for the protection of helpless childhood. Public sentiment was not aroused to the magnitude of the child-labor evil throughout the country, because the people were not advised and did not have the matter brought directly home to them in many parts

of the state. It has been through the persistent efforts of the several organizations in charge of the campaign in Mississippi that public conscience has been awakened to the necessity of a law which would prevent children of the state from suffering because of neglect on the part of the legislature to properly protect them. This, then, was the first great difficulty encountered, and it took many years of earnest and persistent labor to arouse sufficient interest in the cause to wage a winning fight. The credit for the work is due principally to the good women of Mississippi, through whose efforts the importance of enacting child-labor laws has been brought before the public mind.

After the fight had assumed sufficient proportions, bills were introduced into the state legislature to prohibit children of tender years from being employed in factories. Members of the legislature were, however, not sufficiently advised of the importance of the measure, and those who hailed from mill towns were so bitter in their opposition that for several sessions all efforts were unsuccessful. At the session of 1908, however, many legislators had announced in advance of the convening of the legislature that they would support a child-labor bill. Literature was forwarded to them giving statistics in other states, and the secretary for the Southern States made a personal visit to Mississippi and sent a special agent to the various cotton mills to procure data for use before the legislature, so that when the hour of battle arrived the advocates of child-labor legislation found themselves equipped and armed with facts. In spite of the lobby which had always been maintained by the mill interests, and in spite of the stubborn opposition which followed the introduction of the bill, the members of the legislature who opposed it seemed to be unadvised on many of the important points under discussion.

The Opposition

It was my privilege to draft the bill. It was introduced early in the session and required the persistent efforts of those interested in its passage to keep it from being unfavorably acted on in committee, since the mill interests kept representatives at the capital constantly, who on several occasions appeared before the committee to present their side of the question and to argue what they claimed would be an injustice and hardship to the mills and families em-



ployed therein. Not only did these men appear before the committee, but they talked with members of the legislature whenever the opportunity presented, and endeavored to persuade them that business interests would be injured and the mills subjected to a heavy loss if deprived of the labor of the children. They seemed forgetful of the fact that the state owed a greater duty to the children than to any moneyed corporation within its borders. They seemed to forget that the health, education and moral training of children was of more importance than dividends of stockholders in factories where these children spent their lives. Just as in the commercial world the dollar is the unit of value, so in the body politic the child is the unit of value, and upon the soundness of the child depends the future of the state and nation.

In most instances, the mill interests secured the support and influence of the local representatives, this being due no doubt to a feeling on the part of the legislators that great damage would result if poor children were forced out of employment. Perhaps they also feared that the advocacy by them of child-labor legislation might not be approved at home and that their course would meet with condemnation by the influential citizens of their respective counties, many of whom were interested in the mills. They may have feared also that children thus thrown out of work would become a charge upon charity, or that a dependent parent might, by the loss of the child's wages, suffer for the necessities of life. They seemed to forget that their first duty was the protection of the small children, whose property is so well protected by the laws of the state, but whose physical, mental and moral welfare has been without the protection of the law. They seemed to forget that no one ever died of starvation in Mississippi. They seemed to forget also that no community has ever permitted a deserving woman or child long to want for the necessities of life.

The only argument we could use against the contention of the mill owners was to take the high ground of justice and right, and appeal to the humanity of the legislature. Even then we were met with the proposition that the children and their families were better off in the mills, and that it was to their interest to be allowed to remain in the employ of factories without restriction. We were also met with the proposition that the state should not interfere with a parent's right to control his own child. In this latter

contention, however, we had no trouble in convincing the members of the legislature not only that they had the right, but that it was their duty in many instances to do so. It is the duty of the state to save the child, not only from corporate greed, but from its own parent, if necessary.

Compromise rather than Defeat

After having obtained a favorable recommendation from the committee, when the bill was called for passage it was very bitterly assailed, and a motion to re-commit was carried after a discussion of certain features most strongly attacked by its opponents. After recommitment a subcommittee was appointed, and I appeared before this subcommittee and decided to make certain concessions by way of compromise rather than risk a defeat of the bill, since the vote was very close; and I had hopes that two or three members who had opposed the bill when first offered would support a compromise measure. In this conclusion I was correct. Practically the only concessions made were to change the age limit from fourteen to twelve years and the elimination of that feature of the bill requiring employees under the age of sixteen years to have attended school for a portion of each year in which they accepted employment in factories. The bill then came up for final passage in the senate. The mill interests were strongly entrenched, having a number of their representatives on hand. When the bill was called section by section for passage, amendments were offered to almost every section in an effort to get the bill so amended that it would be of no service whatever, or unacceptable to its own advocates. The hackneyed provision with reference to "invalid fathers, widowed mothers and orphan children" was offered, but defeated by a close margin.

Then came a fight on the number of hours per day which the children should be permitted to work. Following the recommendation of the Nashville Conference of 1907, I had agreed on a ten-hour day, though personally I preferred to see an eight-hour limit inserted. Even a ten-hour day was opposed on the ground that the mills should be allowed to use their own discretion as to the number of hours of employment. They objected to any regulation whatever in the number of hours of employment per day, but were willing to accept a sixty-three hour week. The bill, however, finally

passed with a provision restricting a day's employment to ten hours, fixing a fifty-eight hour limit per week. Night work of children under sixteen years of age is prohibited, and applicants under that age required to furnish a certificate from their parents showing their age and educational advantages, and one from the county health officer showing their physical condition. The enforcement of the law will necessarily be somewhat handicapped by reason of the fact that no provision was made for the appointment of a factory inspector, this duty having been assigned to the sheriff of the county where the mill is located, and to the county health officer. It was thought useless to ask the creation of a special office of factory inspector, because there were so few mills in the state where child labor is employed, and so few children employed therein, that the duty could be performed with less expense and with almost as great efficiency as by a special officer.

After the bill was sent to the house of representatives, the fight was renewed. The mill interests feared to have the bill called on the calendar, since its passage was practically assured if it ever came to a vote. Dilatory tactics were adopted, and it was some time before the matter was taken up in committee. The committee set a date for hearing objections to the bill, and after arguments on both sides had been heard, recommended the bill just as it came from the senate, except that a sixty-hour week was fixed, with no regulation as to a day's employment for children under sixteen years. This amendment was defeated on the floor of the house, and the bill was passed on the day before adjournment, and received the Governor's signature on the last day of the session.

Continued Opposition to the Law

The statute went into operation October 1, 1908, and I am advised that the various mills have regulated their schedules so as to come within the pale of the law. The mill owners, however, have not been silent in their protests since the enactment of the law, but have announced their determination to fight for its repeal or modification at the next session of the legislature. So it will be seen that not only were we confronted with difficulties in the passage of the law, but we must keep it on the statute books over the protests of the manufacturers. This we believe we can do, as the more the question is agitated, the greater will the interest in the welfare

of the children become. When the issue is clearly defined, and becomes in reality a battle between the dollar and the child, the people of Mississippi, as well as those of every other Southern state, will respond to the cry which comes to them from helpless children, unable to protect themselves from slavery of body, dwarfing of mind and neglect of soul. The people of Mississippi have the Anglo-Saxon pride of race which will not deny to struggling children an opportunity to acquire strength of body, development of mind and expansion of soul necessary to fit them to become strong and influential citizens, the fathers and mothers of future generations.

This movement has been frequently characterized as fanatical. It has been said that it is the work of women and preachers. If this be true, then all the more credit is due the good women and preachers who have undertaken such an unselfish work, and have fought such a winning fight. God pity the woman whose heart is not touched by the cry of a child; God pity the child of such a woman; God pity the minister who has forgotten the words of the Master, "Suffer little children to come unto Me."

Reports from State and Local Child Labor Committees¹

KENTUCKY CHILD LABOR ASSOCIATION.

The Kentucky Child Labor Association was organized in February, 1907. Its declared purposes were the collection and dissemination of information concerning the working children of Kentucky, the cultivation of a public opinion favorable to a reasonable regulation of child labor and the proposal of measures for such regulation by government. It was contemplated that its activity should be state-wide. In this respect the hopes of its promoters have been, up to this time, only partially fulfilled. In Louisville, which is the chief industrial city of the state, its organization has been thorough and its influence considerable. In other parts of the state it cannot be said to have exerted any marked influence, except through the passage of the Child Labor Law, hereafter described, which is, of course, applicable to the entire state.

The law of Kentucky in force when this association was organized (Act of March 17, 1906), may be summarized as follows:

Act of March 17th, 1906.

Children Affected. Class I, children under fourteen; Class II, children between fourteen and sixteen.

Employments Prohibited. To Class I (under fourteen): (a) At all times, employment "in any factory, workshop, mill or mine." (b) During school term, employment "in any mercantile establishment, in any service of any telegraph, telephone or public messenger company, laundry, or printing establishment."

To Class II (between fourteen and sixteen): Employment "at any occupation dangerous or injurious to health or morals."

Exception. As to children under fourteen years, the following proviso was added to the prohibition: "unless said children shall have no other means of support." This clause was interpreted as reserving to each county judge in the state the power which he had possessed under an earlier law, to grant a "permit" authorizing the employment of a child under fourteen in cases where he was satisfied by proofs submitted to him that the earnings of the child were absolutely necessary to the support of the family.

Hours of Work. Children under sixteen: "In any manufacturing establishment, mine, mill or work-shop," no such child could work "after 7 o'clock in the evening or before 6 o'clock in the morning", nor more than ten hours in one day or sixty hours in one week.

Penalties. For any violation a fine of not more than \$50.00 for the first offense and not more than \$200.00 for any subsequent offense.

¹For the report from the Illinois Child Labor Committee, see the statement of the Secretary, Mrs. H. M. Van der Vaart, page 214.

Proof of Age. Affidavit by parent or guardian; if neither, affidavit by the child.

Investigation. Right of visitation given Labor Inspector; "Inquisitorial" powers of investigation given to Grand Jury. The act contained the usual sanitary regulations.

Defects in the Old Law.

The two chief evils which were developed in the practical application of this law were, first, the abuse by parents of the power given the county judge to make an exception to the prohibition by the issuance of the "permit"; and, second, the utter breakdown of the method provided for proving the age of applicants for employment. A careful investigation, extending over a period of one year, disclosed an appalling amount of perjury and fraud on the part of parents who sought to put at work little children upon the false pretext of family necessity. A similar investigation showed that, in securing employment for children, the practice of swearing to a greater age than the child had really attained was very common. How these faults were attempted to be remedied by the new law appears in the following synopsis of that law.

Child Labor Act of March 16th, 1908.

Employments Prohibited. Section One.—Children under fourteen not to be employed: (a) "In any business or service" during the term of the schools in the district wherein the child resides; (b) Nor at any time in, nor in connection with any factory, workshop, mine, mercantile establishment, store, business office, telegraph office, restaurant, hotel, apartment house, or in the distribution or transmission of merchandise or messages.

Section Two.—Children between fourteen and sixteen not to be employed in any factory, workshop, mine, or mercantile establishment until they have obtained an employment certificate.

Employment Certificates. Section Three.—Employment certificates to be issued by school authorities (superintendent, if any).

How Obtained. Sections Four and Six.—Preliminaries to issuance of employment certificate are:

1. Proof of age (*i. e.*, proof of date and place of birth).
2. Filing of "school record"; *i. e.*, a certificate from the principal of the school last attended that the child has been at school for one hundred days in year next before reaching fourteen, or next before the application for the employment certificate; that he can read and write simple English sentences; and that he has had instruction in geography and the simple parts of arithmetic (*i. e.*, through common fractions). If school record is not obtainable, an examination on these points may take its place.

Contents. Section Five.—Employment certificates shall state:

1. Date and place of birth of child.
2. Color of hair and eyes, height and weight.
3. That the required preliminaries (Sections 4 and 6, *supra*) have been observed.

Record. Section Seven.—School Board to furnish Labor Inspector monthly with list of certificates issued.

Hours of Work. Section Eight.—(a) Children under sixteen not to work longer than ten hours a day, nor longer than sixty hours a week. (b) Hours of work for such persons, to begin not sooner than 7 a. m., nor to continue later than 7 p. m. (c) Printed notice of hours of labor to be conspicuously posted.

Penalties. Sections Nine and Eighteen.

I. Against Employers.

(a) For the first violation of this Act, a fine of \$25.00 to \$50.00.

(b) For each subsequent offense, imprisonment (10 to 90 days) or fine (\$50.00 to \$200.00) or both.

(c) For continuing an illegal employment after notice from Truant Officer or Labor Inspector, a fine of \$5.00 to \$20.00.

(d) For failure to surrender certificates when demanded, \$10.00 fine.

II. Against Parents or Guardians.

(a) For permitting a child under their control to be illegally employed, a fine of \$25.00 to \$50.00 for the first offense.

(b) For each subsequent offense, imprisonment (10 to 90 days) or fine (\$50.00 to \$200.00) or both.

III. Against Officers Issuing Certificates.

For a known false statement, \$10.00 to \$100.00 fine.

Visitation. Section Ten.—Right of visitation given Truant Officers and Labor Inspector.

Sanitary Regulations. Section Eleven.—Certain employments, dangerous to health or life, forbidden to children under sixteen.

Sections Twelve, Thirteen, Fourteen and Fifteen.—These contain sanitary regulations for establishments where children under sixteen are employed.

Prosecutions. Section Sixteen.—Inquisitorial powers for investigating violations of this Act given to Grand Juries, County and Circuit Judges.

Section Seventeen.—Copy of this Act to be conspicuously posted.

When the Act Becomes Effective. Section Nineteen.—Act to go into effect September 1, 1908, except that the requirement of a "school record," or in default thereof, an examination, shall not be effective until September 1, 1909.

Objections to the Passage of this Act.

1. That it would throw out of employment more children than the existing schools could accommodate.

2. That it would make loafers of many children who, having had no schooling at all, could not be expected at the age of thirteen or fourteen or fifteen to enter classes with children who were four or five or six years younger than themselves.

3. That the penalties were too heavy and particularly that the penalty of imprisonment was unnecessarily offensive.

4. That the requirement that children should not be employed after 7 p. m. would necessitate discharge of large numbers of children from retail stores where, on Saturday evening particularly, work must continue to a later hour.

5. That the educational test was too severe, even for children who had attended school up to their fourteenth year.

6. That the office of the school superintendent would be overwhelmed by the additional duties imposed upon him.

Operation of the Act.

In order to meet the objections last named and those which had to do with the educational test, it was provided that no part of the Act should go into effect until September 1, 1908, and that the application of the educational test should not be made until September 1, 1909. Out of deference to the wishes of the employers, the Kentucky Child Labor Association consented to two amendments of the bill, which had already been introduced. These amendments permitted the employment of children between fourteen and sixteen until ten o'clock on Saturday night and eliminated the penalty of imprisonment. The legislature, however, would not consent to these amendments, but passed the bill in its original form.

The predictions of the opponents of the bill have not been fulfilled. Unquestionably some children have lost employment which they would otherwise have retained, but in no case which has been brought to our attention has this resulted in any serious or irremediable distress. On the other hand, it can safely be asserted that this result has, in nearly every instance, been of great benefit to the children. Here and there an employer has been found who has refused to retain or employ any children under sixteen, upon the plea that he did not want to "take any chances" or desired to avoid the trouble of seeing that the children had proper certificates. These cases have, however, been very few.

The point at which it was expected that the effect of the Act would most clearly appear was in the attendance on the public schools in Louisville. The same legislature which passed the Child Labor Bill also passed a new compulsory education law, by which a more numerous corps of truant officers was obtained and its duties more clearly defined. It was naturally anticipated that the joint operation of these two acts would be to increase the school attendance. The facts are as follows:

The school census shows that there are 65,000 children of "school age" in Louisville; that is to say, children between six and twenty years of age, all of whom are entitled to attend the public schools if they so desire. Of these, 35,680 are between the ages of six and fourteen, and therefore prohibited from working by the new law. A comparison of the enrollment of the public schools and the average daily attendance for the months of September, October, November and December, in the years 1906, 1907 and 1908, is as follows:

TABLE I, ALL SCHOOLS.

	1906.	1907.	1908.	Increase 1908 over 1907.
September.				
Enrollment	26,109	26,155	26,216	61
Attendance	22,707	22,652	23,525	873
October.				
Enrollment	27,609	27,231	27,103	-128
Attendance	24,131	24,118	24,325	207
November.				
Enrollment	28,199	27,686	27,103	-583
Attendance	24,193	23,505	24,110	605
December.				
Enrollment	28,447	27,887	27,756	-131
Attendance	23,826	23,274	23,718	444

TABLE II, HIGH SCHOOLS (5) ONLY.

	1906.	1907.	1908.	Increase 1908 over 1907.
Enrollment	2,692	2,813	2,516	-297
Average Daily Attendance.				
September	2,202	2,243	2,218	-25
October	2,548	2,352	2,287	-65
November	2,301	2,340	2,147	-193
December	2,151	2,296	2,214	-82

TABLE III, DISTRICT SCHOOLS ONLY.

	1906.	1907.	1908.	Increase 1908 over 1907.
Enrollment.				
December	25,755	25,074	25,240	166
Average Daily Attendance.				
September	20,505	20,409	21,307	898
October	21,583	21,766	22,038	272
November	21,892	21,165	21,963	798
December	21,675	20,978	21,504	526

The first noticeable thing in this tedious parade of figures is the falling off in enrollment, both in 1907 and 1908, from the 1906 enrollment. This is attributed to the late commercial unpleasantness which began in the Fall of 1907. It is believed by the superintendent of schools that many children were taken from school and put to work in order to help support the family at a time when the father of the family was either out of employment or working at reduced wages. The second noticeable thing is that, in the comparison between 1907 and 1908, whereas there is a falling off both in enrollment and attendance in the high schools, there is a slight increase in enrollment and a marked increase in attendance in the district schools where, of course, the effect of the Child Labor and Truancy Laws would be felt. This, we think, may fairly be attributed to the joint operation of these laws. The reports of the Labor Inspector, the Truant Officers

and the agents of the charity organizations agree in stating that there are very few children under the age of fourteen who are not at school. The official figures do not bear these statements out.

As to these children the figures are as follows:

TABLE IV.

Children Between Six and Fourteen.

School census	35,680
Enrolled in District Schools	25,240
Subtract children over fourteen in District Schools.....	3,673
	<hr/>
	21,567
Add children under fourteen in High Schools	184
	<hr/>
	21,751
Children enrolled in Parochial Schools.....	7,988
Children enrolled in Private Schools	200
	<hr/>
	29,939
	<hr/>
Children (six to fourteen) not in school.....	5,741
	<hr/>
Children (seven to fourteen) not in school.....	4,781
	<hr/>

Thus the enrollment in all schools is almost 6,000 below the census. The average daily attendance would fall more than 3,000 lower still; but this does not indicate that 9,000 children are regularly out of school. It will be observed that the average daily attendance is from eighty-five to eighty-eight per cent. of the enrollment. The Superintendent of Public Schools advises us that not more than one-sixth of this discrepancy is due to chronic truancy, five-sixths being attributable to sickness and those other domestic disorders which occasionally bring about an absence of a day or two from school. We cannot view with any complacency the working of an anti-truancy system which lets escape seventeen children out of each one hundred. We shall make a better report next year.

Attendance of Children Between Fourteen and Sixteen.

To date (January 20, 1909), the Superintendent of Public Schools in Louisville has issued 1,508 employment certificates. The school census shows that there are in Louisville 8,567 children between the ages of fourteen and sixteen. Of this number, 3,673 are still in the district schools (as distinguished from the High Schools), although the average age of graduation from the eighth grade (next below the High Schools) is thirteen and one-half years. The enrollment in the High Schools is (in round figures) 2,500, of which number 184 are under fourteen. Of children of this age there are enrolled in parochial and private schools of this city about 500. This makes the following showing:

TABLE V.

Children Between Fourteen and Sixteen.

School census	8,567
Enrolled in District Schools	3,673
Enrolled in High Schools	2,332
Enrolled in Parochial Schools.....	332
Enrolled in Private Schools	160
	<hr/> 6,497
Children between fourteen and sixteen, not at school.....	2,070
Children holding employment certificates	1,508
	<hr/> 562

This remainder (562) represents the children in Louisville, between fourteen and sixteen, who are not at school and are either loafing or working without certificates. Now it is not, in all cases, unlawful for a child, although under sixteen, to work without a certificate.

The New Child Labor Act says that no child between fourteen and sixteen shall work "in any factory, workshop, mine or mercantile establishment" without a certificate. The Attorney General of the state has held that this means that in the other employments prohibited to children under fourteen, no certificate is required of children between fourteen and sixteen. Those other employments are "any business office, telegraph office, restaurant, hotel, apartment house, or the distribution or transmissions of merchandise or messages."

This circumstance makes it impossible for us to know exactly how many of the 562 children who are not at school and do not hold certificates, are loafing and how many are working. Of this number we suppose that 200 or 300 are engaged in employments for which no certificate is required. If this assumption is not wide of the mark, there remain 200 or 300 children of this age who are either loafing or working unlawfully. We submit that this is a better record for our Labor Inspector than that shown by the Truant Officers. He leaves only 200 or 300 children unaccounted for, whereas the Truant Officers have almost 6000 of whom they can give no account. It is of course probable that some of those 6000 are at work, and this must of course be put on the debit side of the Labor Inspector's account.

The Christmas Trade.

The rush of business in retail stores, which everywhere characterizes the Christmas holidays, brought out in its acutest form the difficulty with reference to the employment of children after seven o'clock in the evening. Our very competent Labor Inspector, in view of the newness of the regulation, and in pursuance of his excellent plan of securing a general acquiescence by a process of friendly co-operation with the employers rather than by a rigorous enforcement of penalties, took the position that he

would not institute prosecutions, as he had done under other circumstances, for slight infractions of the law during the Christmas rush.

We have had made an investigation of the conduct of the large retail dry goods stores in Louisville during Christmas week. Four of them employed no children under sixteen more than ten hours a day; that is to say, strictly complied with the law. Two employed older girls and boys to wrap and deliver bundles after seven o'clock. Two of these employed older boys to deliver bundles after that hour and had the wrapping done by their regular force of clerks. Two concerns required their employees who were under sixteen to work until ten o'clock on each of the five evenings preceding Christmas; that is to say, they openly violated the law. One of these establishments served its employees with hot lunches and supper on every day in the holiday week. One of them gave meal tickets for both lunch and supper on every day in that week. One of them served a supper to its employees on Christmas Eve. One served its employees with hot coffee each evening during that week; one of the two which kept its children at work until ten o'clock made no such provision at all. All of these stores, during Christmas week, allowed thirty minutes for lunch and one hour for supper.

Investigation and Relief.

Before the Kentucky Child Labor Association came into existence and while that law was in force which permitted the County Judge to issue "permits" to children under fourteen, the Consumers' League, of Louisville, had established a "Scholarship Fund." This was managed in the following manner. All applications to the County Court for "permits" were reported to a Committee of the Consumers' League, and by them an investigation into the merit of the application was undertaken. If the family to which the applicant belonged was discovered to be worthy and in great necessity, the Consumers' League entered into an undertaking with the County Judge that, if he would refuse the application and so require the child to remain in school, the league would pay to the child's family, so long as it was needed, a weekly sum equal to what the child would earn if at work. This work was later undertaken by the Kentucky Child Labor Association. When the new Child Labor Act went into effect, it wiped out that line of classification according to which this aid had been given, because there was no longer any power to grant permits. Since all children under fourteen must now go to school, and none can go to work, all cases of want or distress fell into a general class calling for relief by those organizations devoted to that purpose. However, partly through the mere persistence of a habit and partly from a sense of obligation to see that the new law did not produce the distress which its opponents predicted, the Association has continued this work. During the months of October, November and December, 1908, its Committee on Investigation and Relief, upon reports made to it by the Truant Officers, visited 100 homes and made a careful investigation of the conditions. To many of these children shoes and

clothing were given which enabled them to go to school. In some cases "Scholarships" were awarded; that is to say, a weekly payment of from one to three dollars was made to the family. These payments are not continued indefinitely, but every effort is made to put the family in the way to be self-supporting. Situations were sometimes found for other members of the family, and in the majority of such cases the scholarship payments were stopped. When the child receiving the scholarship attains the age of fourteen, some employment is found for him or her, unless the child is enabled to stay at school by means of some other provision for the family. The largest sum paid to any one child since this work was undertaken by the Association is \$48.00.

It is not expected that the Association will continue this work indefinitely, but is expected that it will gradually be assumed by other agencies better equipped both for making the investigation and providing the relief.

Outlook.

We anticipate that new and larger difficulties await us. So far we have not had to deal with the results of the application of an educational test. This part of our law will go into effect on September 1, 1909. It cannot confidently be predicted what its effect will be. The Superintendent of the Public Schools reports as follows with reference to certificates heretofore issued.

"The applicants as a rule come from a class that should have much more education than they now have. I have been compelled to issue certificates to a number of applicants who could neither read nor write. Many more had gone no higher than the third or fourth grade in Public School work. Unfortunately the Compulsory Attendance Law will not reach children of the ages covered by the Child Labor Law. If it had I should have compelled many children to go to school to whom I issued certificates."

And he adds, "I anticipate that during the next vacation and before September 1st, that great difficulty will arise about renewing a great many of the certificates, for I am convinced that fully one-third of the permits that have been granted cannot be re-issued on educational qualifications."

The educational test which it is thus asserted could not be satisfied by one-third of the children to whom certificates have been issued, requires that the applicant shall be "able to read and write simple sentences in the English language, and" shall have "received instruction in reading, spelling, writing and geography and" shall be "familiar with the fundamental operations of arithmetic, up to and including common fractions." It appears at a glance that this does not demand a very high order of scholarship. The requirement is more than satisfied by the training received by a child who has gone through the fifth grade in the Louisville Public Schools, a stage which the average child reaches at the age of ten. The average of completing the eighth grade in Louisville (next below the High Schools), is thirteen, or thirteen and a half, and such children have learned not only to read and write and do their sums, but have completed the study of

English grammar, arithmetic, geography, history of the United States and of Kentucky, and have had some instruction in physiology and hygiene, in music, in drawing, and one year of algebra.

Of course many of these children will have reached the age of sixteen when the educational test becomes effective; but many of them will not have done so and doubtless a new crop of illiterates will come on to take their places. This would not be so if the Compulsory Education Law were strictly enforced.

It is, of course, probable that the application of this test will produce some inconvenience and hardship. If it did not do that it would probably fail of its purpose. You cannot get the wagon out of the old rut without administering some jolts. We hope to jolt it just enough to wake up some of the occupants without inflicting any serious or permanent injury.

Our experience under the Child Labor Act has been too short to warrant any emphatic expression of opinion as to any faults in the law. We are, however, keeping an eye on these points:

1. More inspectors.
2. Assistance to the school superintendent in the labor of issuing certificates.
3. Greater freedom in the matter of vacation work.
4. Perhaps the authorization of some sorts of work out of school hours.
5. Raising the Compulsory School Attendance age to sixteen.

LAFON ALLEN,
President.

MAINE CHILD LABOR COMMITTEE.

There is nothing new that I can report for the Maine Child Labor Committee as to laws, since our legislature meets biennially. The legislature is now in session. We have introduced a bill in the senate asking for an educational test for all children between the ages of fourteen and fifteen years who desire to work during school hours, this to be in charge of the school superintendents under the state superintendent, who issues the certificates. The bill calls for a fifty-eight hour law for women and minors under sixteen years of age, prohibits night work for minors under sixteen from 7 p. m. to 6 a. m. in all manufacturing, mechanical and mercantile establishments, the messenger service and street trades. How much we shall be able to carry remains to be seen. We have had one hearing, which developed the bitterest opposition. Another hearing will be held February 17th, when the shoe makers and woolen manufacturers are to oppose us. The members of our committee are doing strenuous work. It is all a labor of love. We have no money. Everyone pays his own bills and gives his services, but so far we have had plenty of help. If we can only convince "the powers that be" that right will prevail in spite of the money power, we shall win out.

ELLA JORDAN MASON,
Secretary.

MASSACHUSETTS CHILD LABOR COMMITTEE.

The Massachusetts Child Labor Committee was organized November 28, 1908, at a meeting called by E. W. Lord. Hon Curtis Guild, Jr., Governor of Massachusetts, acted as chairman. The speakers were President Charles W. Eliot, Governor Guild and Meyer Bloomfield. A constitution was adopted, naming thirty-three active members and providing for as many associate members as can be secured. The plan of the committee is to spend a year in investigating the conditions of child labor in Massachusetts and in preparing and working for a model child labor law. This, it believes, should precede any active support of child labor legislation. An executive committee of eight and the officers are beginning the work of organization and investigation. The officers are: Chairman, Hon. Grafton D. Cushing; Vice-Chairman, Hon. Frank Leveroni; Treasurer, Professor Charles F. Bradley; Secretary, Richard K. Conant; Executive Committee, Henry Abrahams, Miss Georgie A. Bacon, Meyer Bloomfield, Howard W. Brown, Miss Alice L. Higgins, Miss Edith M. Howes, Mrs. Mary Morton Kehew and Everett W. Lord.

RICHARD K. CONANT,
Secretary.

MICHIGAN CHILD LABOR COMMITTEE.

The Michigan Child Labor Committee has been instrumental in introducing a bill, now before the state legislature, changing and improving the present law in regard to the employment of children. If this bill is passed, without bad amendments, Michigan will have a fairly good law. The State Federation of Women's Clubs and organized labor are aiding this committee.

FRANK T. CARLTON,
Secretary.

INTER-CHURCH CHILD LABOR COMMITTEE OF GRAND RAPIDS,
MICHIGAN.

The Inter-Church Child Labor Committee of Grand Rapids, Michigan, has held regular meetings on the last Monday of each month, except during the summer.

Many interesting topics have been discussed, including "Work in the Soft Coal Mines of Pennsylvania," "Sweatshops and Tenements," "The Michigan Labor Laws Relating to Women and Children," "Some Weak Spots in the Laws and Their Remedies," "The Dangers of Overwork and Idleness," "Benefits of Playgrounds and Industrial Schools," and "Local Conditions."

The subject, "The Newsboys," was ably discussed at different times by Judge Alfred Wolcott of the Circuit Court, and Judge Harry D. Jewell of the Probate and Juvenile Court, and others.

Helpful addresses and talks have been given by the different ministers of the city, including Rabbi Kahn, of Temple Emanuel.

Letters were written to our Representatives in Congress, urging the passage of the District of Columbia Child Labor Law Bill.

On January 27, 1908, a Committee of five was appointed, which is known as the Industrial Scholarship Fund Committee. The object is to assist to attend school worthy children who would otherwise be obliged to stay out and work to help support the family. Contributions have been received from Women's Clubs, Church Societies and individuals, amounting in all to \$186.10. The amount paid out is \$85.23. Balance on hand, \$100.87.

Last Spring two boys were assisted at \$1.50 per week each. One finished the seventh grade in June, and is now working. He will soon be able to return the money which was loaned to him from the fund. We are at present helping one boy and three girls. The boy is taking the eighth grade, and receives \$2.00 per week. He is fifteen, the oldest of five children, the mother a widow.

The girls receive one dollar per week each. All are members of large families. Two of the mothers have been deserted, one is a widow. In several instances children have been out of school for the want of shoes. In those cases, shoes have been purchased from the fund.

Incidentally, and in a quiet way, much personal work has been done by the members of the Scholarship Fund Committee. Where clothing and bedding were needed by these families, they have been provided. At Thanksgiving time, provisions and other useful things were sent; and on Christmas the members of each family were remembered by the Committee or their friends. The encouragement and inspiration of this personal interest are of great value.

Law infractions and unfavorable conditions are quite often reported to the Child Labor Committee. The Deputy Factory Inspector or the truant officer is at once notified, and when possible, the evils are corrected.

Eleven denominations are represented on this Committee. The interest is growing, and we hope during the coming year we may be able to do still more work along practical lines. March 21, 1908, we sent \$25.00 to Mr. Macy, the Treasurer, thus becoming a sustaining member of the National Child Labor Committee.

MRS. H. GAYLORD HOLT,
Chairman.

MINNESOTA CHILD LABOR COMMITTEE.

The Minnesota Child Labor Committee is just old enough to answer to roll call, but not old enough to offer an annual report, having been in existence (as fully organized) just one week. It owes its existence to the efforts of the National Child Labor Committee, through its field agent who, last October, suggested to a little group of persons the feasibility of such an organization in Minnesota. The Woman's Club of Minneapolis became

interested in the movement and appropriated the sum of sixty dollars (\$60) to defray the expenses of preliminary investigation and organization.

The preliminary investigation covered:

First. The laws relating to children.

Second. Local conditions, and means of enforcing these laws.

Third. Canvass of organizations already in existence, with a view to co-ordination of existing forces.

Laws. The laws governing child labor and compulsory education are good. Slight amendment will bring them fully up to the standard submitted by the National Consumers' League in its Handbook of Advanced Child Labor Legislation.

No child under fourteen years of age may work during school term.

No child between the ages of fourteen and sixteen may work without a permit from the superintendent of schools or some one appointed by him to issue such permits.

Personal examination of children by the person issuing the permits is required. The requirements are those suggested in the so-called "Standard" Child Labor Law except, however, that children of poor parents are exempt from the full protection of the law.

The school record required by the law shall be signed by the principal of the school which the child attends, and is in the form approved in other states with good child labor laws.

Sixty hours per week or ten hours in any one day is the maximum number of hours of labor allowed any person under sixteen years; or before the hour of seven o'clock in the morning, or after seven o'clock in the evening, except on Saturday and on ten days prior to Christmas.

Local Conditions and Facilities for Enforcement of Laws.

Child labor and child loafing both exist in Minnesota. It is not possible at present to secure accurate statistics. All that can be said is that truant officers and factory inspectors are constantly finding them. Some evade the law under cover of change of residence; others are lost because of lack of co-operation of private schools in efforts to trace them. Minnesota has no school census. It is believed that when such a census is provided, better results may be accomplished.

The state provides a Bureau of Labor as follows:

Section 1. *How Constituted—Terms—Employees.*—The Bureau of Labor, Industries and Commerce shall consist of a commissioner of labor, as assistant commissioner and a statistician, and shall have its office in the capitol. The commissioner shall be appointed by the governor, by and with the advice and consent of the senate, for a term ending on the first Monday of January in the odd numbered year next ensuing. The two other members shall be appointed for like terms by the commissioners, but all the members shall hold office until their respective successors qualify. The commissioner shall also appoint, and at pleasure remove, three deputy commissioners, five factory inspectors, five assistant factory inspectors, and such other employees as may be necessary, and for whose compensation provi-

sion is made by law. Two of the said factory inspectors shall act as inspectors of railroads. The factory inspectors and the assistant factory inspectors must be persons possessed of practical experience and knowledge in and of the operation of factories, and the appointment of any not so qualified shall be void. The commissioner shall be the head of the Bureau, and may assign any other member or employee thereof to any duty imposed thereon by law.

The total number of cases investigated by the factory inspectors while acting as truant officers for the several school boards, was..... 684

(From September, 1908, to January, 1909.)

Their work was done in seventeen cities of the state.

The disposition of cases was as follows:

Returned to school	423
Granted employment certificates	93
Moved out of district	35
Excused by school board	66
Excused for illness, doctor's certificate	26
Over sixteen years of age	17
Attending private schools	21
Graduates of eighth grade	2
Committed to state school	1

684

During the fall term the superintendents of schools issued 935 permits to work to children under sixteen. One year ago 1045 were issued in the same period, making a reduction of 110, or 10.5 per cent.

Canvass of Organizations and Organization of State Committee.

Lists were procured so far as possible of organizations throughout the state interested in any way in the welfare of children. As a basis of organization, a circular letter was sent out to these organizations in which it was proposed to form a State Child Labor Committee to be composed of delegates from other organizations. The result was that November 15th, twenty-eight delegates in meeting assembled decided to form a Minnesota Child Labor Committee. The first meeting of the Executive Committee occurred January 15, 1909. A Committee has been appointed to formulate a plan for securing and issuing labor scholarships.

The Minnesota Committee is in cordial sympathy with the work of the National Committee. Resolutions in support of the bill, asking for a Federal Children's Bureau and for the observance of Child Labor Day, have been offered, and it is the ambition of the local Committee to attain such strength and power that it may be worthy of the responsibility imposed upon it by its membership in the National Committee.

META JACKSON BARNARD,
Secretary.

NEBRASKA CHILD LABOR COMMITTEE.

Under the operation of the child labor law in Nebraska, with superintendents of schools handling the issue of schooling and age certificates (which are the permits to work) less than 700 such permits were issued up to the close of the school year in 1908. The law went into effect on March 1, 1907. Most of these permits were issued in Omaha and South Omaha, naturally, as the large establishments likely to employ children are located most numerous in those two cities. Lincoln followed in number issued, while in the state outside the permits were very few in number.

This condition exists in Nebraska: The attorneys of many of the larger factories, and of the packing houses advised against taking any chances with the law, and as a consequence some boys were discharged whose employment was not really a violation of the spirit of the law. Only in a few cases, comparatively, was stubbornness exhibited in continuing to employ children illegally after fair warning. Barring the Greek boys who are *farmed* as shoe shiners, court prosecution was not resorted to, except incidentally.

We met the Greeks in court, and they virtually defeated us. Those who watched the cases carefully became convinced that the Greek plan of campaign had been mapped out before the boys left the old country. On the first trial some of them, talking out of court, admitted they were not quite fifteen. Next day, on the stand, they were all sixteen or over, and when the case threatened to become serious, all were seventeen or over. A great many insisted they had come into the country with their fathers, but in a big majority of the cases the father had "gone back to the old country." The State Labor Commissioner took part in investigating and attempting to prosecute these cases, and a special agent of the United States government also took a hand; but the latter seemed as much at a loss how to reach and remedy the evil as the local authorities. However, the hearings had a good effect, at least for the time being. A continual excuse of merchants who need messengers and boys for other purposes about stores, is that we permit under-age Greeks to work, but will not allow American boys to do so.

Up to this time the plan of having school superintendents issue permits, under the direction of the State Labor Bureau, has worked very satisfactorily. The retiring labor commissioner reports that he found it unnecessary to issue even one permit over the heads of the superintendents, although he did advise the issue of perhaps half a dozen where superintendents were in doubt.

A peculiar and gratifying development of the operation of a group of correlated laws in Nebraska (child labor law, compulsory education law, and Juvenile Court law) has been a great lessening of the commitments to the reform schools for boys and girls, especially the former. The retiring superintendent of the Nebraska Industrial School, Mr. Sherman, has reported that the number of boys sent to that institution has been decreasing so steadily that, if it continues, there will be no use for at least one of the buildings.

Two of the volunteer inspectors provided for under the Nebraska law have aided very effectively in having its provisions carried out. These two are Rev. James Wise, of South Omaha, Chairman of the Board of Inspectors, and Mrs. Draper Smith, of Omaha. The three other inspectors have been such in name only, two of them being located where there was no call for their services, in small rural towns, the third evincing no interest after being appointed by Governor Sheldon. An effort is to be made to have inspectors located hereafter in towns where their services are very likely to be needed. There are several such towns in the state outside of Omaha and Lincoln.

On the whole, it can be asserted without fear of contradiction that Nebraska is quite free from abuses of child labor, with the possible exception of the messenger service. Employers have been commendably willing to obey the spirit of the law. The law here can be regarded as mainly preventive, a closing of the door on possible danger in the future.

JOHN J. RYDER,
Secretary.

NEW YORK CHILD LABOR COMMITTEE.

The New York Committee has had a year full of activity, and is pleased at this time to report considerable progress. By far the most important gain has been the enactment of legislation to place the inspection of department stores and all other mercantile establishments under a new bureau established in the State Department of Labor. This marks the end of a twelve-year struggle against powerful mercantile interests. The campaign attending the passage of this measure was the hardest fought since the radical amendments were obtained to the child labor laws in 1903. The chief credit for the victory is due Commissioner of Labor, Hon. John Williams. The New York Committee, the National Child Labor Committee, and a number of other organizations were unceasing in their support of his efforts to secure the enactment of this bill.

As but three months have elapsed since the new Mercantile Bureau was organized in the Department of Labor, it is too soon perhaps to judge of its permanent effectiveness. However, the Committee feels an important piece of work has already been accomplished since the law went into effect October 1st last. This bureau, with but eight inspectors for the three largest cities of the State—New York, Buffalo and Rochester—made approximately 2100 inspections and found a few over 1000 children working illegally during the last quarter of 1908. Thirty-five prosecutions have been instituted against employers violating the law. From these results we are confident that children working in department stores, small mercantile establishments, and for telegraph companies, will receive much greater protection from the law during the coming year than ever before.

The work of the Department of Labor in its inspection of factories has shown very substantial progress. Illegal child labor, which in 1906 represented twenty-seven per cent. of all children employed and in 1907,

seventeen per cent., during 1908 has been still further reduced to thirteen and eight-tenths per cent. Fines, as a result of prosecutions by this department during the year ending September 30, 1908, amounted to \$4455—an increase of \$1745 over the previous year, and fourteen times that of 1903.

The issuance of "working papers" has received more attention from the Committee than ever before. This is explained by the fact that in New York City alone, 23,000 children received employment certificates during 1908. In Buffalo and Rochester the number was 2800 and 1059 respectively. An agent, placed at the Committee's expense in the Manhattan office of the Department of Health, New York City, where employment certificates are issued, had done very effective work in helping parents find satisfactory evidence of age for children otherwise unable to present such proof. More important, however, has been the opportunity thus afforded the Committee to observe constantly the law's actual enforcement. It has also been possible, through this channel, to suggest important improvements towards making more effective the administration of the law. A concrete example of the work done may be seen from this illustration.

It was found that many children were unable to obtain a transcript of their birth record from the Bureau of Vital Statistics, although their parents insisted that the birth of such children had been properly registered. It was suspected that this was due to lack of thoroughness on the part of the clerk who examines the records, partly through failing to look up the name under a slight variation in spelling often existing among foreign-born children. The agent accordingly secured the use of a duplicate set of the index books of these records. As a result, in a period of about eight months, entries were discovered of the birth of over two hundred children whose names had not been found by the department clerk. With such evidence it was a simple matter to go to the higher officials and to secure better attention to this subject. The presence in the office of such an agent has brought about greater regularity in testing the education of the children by the reading and writing test prescribed in the law. Some improvement in watching the physical fitness of children applying for certificates is another outcome of the presence of this agent. This kind of co-operation has proved so acceptable to the officials, and the results so satisfactory, that another agent has recently been appointed by the Committee to carry on the same work in Brooklyn. Last summer the secretary visited thirty cities throughout the State to observe the workings of this law. Rochester was found to be the only one giving serious attention to the physical fitness of children desiring employment certificates. The investigation revealed a considerable number of officials who failed (usually through ignorance) to enforce properly these important provisions. The most common irregularities noted in the issuance of "working papers" were the failure to test the education of children by a reading and writing test, and the acceptance of parents' affidavits as sole evidence of age when other proof could not be produced. Many officials, however, were exercising due vigilance. In some cases the work was being conducted under laws three and four years old, the authorities learning with surprise of recent amendments. As a result of the investigation, a better compliance with the law is expected during the coming year.

Improvement is to be recorded in the enforcement of the law regulating the sale of newspapers by young boys in cities of the first and second class. This is particularly noticeable in New York, Rochester and Troy, where badges indicating that the holders are legally licensed to sell papers, are beginning to be more generally worn by newsboys. In New York, considerable was accomplished during the first two weeks of the present school term by the assignment of fifty truant officers to enforce this law. The Committee feels that the present squad of four men permanently assigned to this work is too small, and hopes to bring about an increase in the near future.

Our child labor scholarships, established in 1905, have been continued. These are for the purpose of meeting the criticism frequently heard—that hardship would result to many families by cutting off, through the law's enforcement, the child's contribution to the family income. Last year, out of 320 applications, only 84 scholarships were granted. The balance represented instances where, after a careful home investigation, there appeared to be no need of outside financial assistance, or ones which required special treatment, such as advice as to how to obtain "working papers", temporary relief in the form of shoes and clothing, or help towards securing work for older members of the family. The cost of this work last year was approximately \$4000, contributed by friends of the Committee.

At the present session of the legislature, it is expected that a number of important amendments to existing laws will be introduced, which will receive the support of the Committee. Among them will be a bill to extend the factory law so as to cover clearly the employment of women and children in the sheds adjoining the canneries, and one with reference to the employment of children in dangerous occupations.

The Committee has now in progress an investigation of the employment of boys in bowling alleys—a phase of child labor in New York State not yet covered by law.

As in the past years, co-operation has been accorded Health Departments, Schools Boards, the State Department of Labor and many civic organizations. A beginning has been made to extend the work of the Committee to the larger cities throughout the State, through conferences in Buffalo and Rochester, and by adding to the Committee a representative from each of these cities.

While a look ahead reveals much remaining to be done, the Committee feels not a little encouraged over conditions as they now exist with respect to children who work in New York State.

GEORGE A. HALL,
Secretary.

NORTH DAKOTA CHILD LABOR COMMITTEE.

At the call of the National Child Labor Committee, a number of Grand Forkers met at the Hotel Dacotah on Monday evening, October 26, 1908, to discuss the feasibility of forming a Child Labor Committee in North Dakota. It was the sense of the meeting that while we have practically

no child labor problem in the state, it would be wise to guard against a day when we would have one, and that as such an organization would be of assistance to the National Committee, we should organize.

Dr. John M. Gillette was chosen President, and Elizabeth Abbott, Secretary-Treasurer. Power was given to the President to appoint a general Committee of thirty, from which Committee an Executive Committee of seven was to be appointed. To date there have been three meetings of the Executive Committee and one of the general. The result is that at the present meeting of the State Legislature, a bill is to be presented modeled on the bill recommended by the National Child Labor Committee.

ELIZABETH ABBOTT,
Secretary-Treasurer.

OHIO CHILD LABOR COMMITTEE.

Since the last annual convention of the National Committee, the Ohio Committee has been reorganized, an executive board of ten members having been appointed to take charge of the Committee's affairs, and this board has already taken up actively the consideration of the need of the child labor situation in this state. By special arrangement with the National Committee, every resident of Ohio who contributes financially to the National Child Labor Committee becomes, *ipso facto*, a member of the Ohio Child Labor Committee without additional expense, and by agreement a portion of such contributions is reserved for the use of the Ohio Committee.

The new Ohio law which took effect on the first of last July, is working satisfactorily and its constitutionality has already been upheld by the Common Pleas Court and Court of Appeals in Cleveland, in a case brought by the Department of Factory Inspection for violation of the eight-hour provision.

The Legislature last Spring also passed a bill providing State relief for poverty stricken families to enable them to keep their children in school until they are qualified to go to work in accordance with the requirements of the State child labor law. This law provides that a truant officer shall report to the local board of education every case of a child of compulsory school age whose earnings are needed to support either himself or others dependent upon his earnings; and it then becomes the duty of the president of the board to furnish free text books to the child and such other relief to the family as may be necessary to enable it to keep the child in school. The money for such relief is to be paid out of the contingent funds of the school district. This provision makes the child labor and compulsory education laws harmonious in their bearing upon the factor of poverty and makes it unnecessary for private organizations to undertake the work of providing such relief in this State. In the city of Cincinnati, the board of education has arranged with the local Associated Charities to have such cases as are reported by the truant officers properly investigated by the social workers of this organization and the relief will be paid only in the event of its being recommended by the Associated Charities.

The State law does not provide protection for children engaged in street trades except for messengers and delivery boys. The newsboys, boot-blacks and children who work in the markets are not restricted in their labor, except in so far as the compulsory education law applies to them. The Executive Board of the Ohio Committee is considering the advisability of regulating the work of children in the various street trades in Cincinnati by municipal ordinance, and has drafted a proposed measure with the intention of urging the City Council to put it in force.

ALBERT H. FREIBERG,
Chairman.

WARREN (OHIO) CHILD LABOR LEAGUE.

Thus far the Committee has confined its attention to local conditions. Its Investigating Committee acts, for the most part, through the superintendent of the public schools and the truant officer. Few cases of minors illegally at work have been found. The officials themselves consider that the Committee has stimulated them to greater alertness and activity, and the employer to a more careful observance of the child labor laws. Perhaps this is the most valuable work of the Committee.

An excellent truant officer and an equally excellent humane officer have usually been able to secure aid from the proper authorities without our help, for the few children who need such aid in order to remain in school.

PHEBE T. SUTLIFF,
Chairman.

The report of the Child Labor Commission of the State of Oregon was received too late for publication in *THE ANNALS* Supplement, but will appear in the reprint of this volume to be published by the National Committee.

THE PENNSYLVANIA CHILD LABOR ASSOCIATION.

Since the report made in April, 1908, the local child labor organizations in Pittsburg and Philadelphia have federated under the name of the Pennsylvania Child Labor Association. Local branches have been organized in other cities and during the fall months an active campaign of education was carried on in preparation for the introduction of two child labor bills which have the following for their purpose:

1. To require proof that children are fourteen years old before they shall be allowed to work.
2. To place the issuance of employment certificates in the hands of school officials.
3. To raise the age for work in soft coal mines from twelve to fourteen.
4. To allow only a ten-hour day for children under sixteen years of age.
5. To prohibit all forms of night work for children under sixteen years of age.

The Federation of Women's Clubs, Mothers' Congress, the Consumers' League and various local organizations are all co-operating to this end.

Eleven different types of literature have been distributed, some in 30,000 quantities, bearing upon the issues of the campaign. The prospects are encouraging for a bill which will stop parental perjury and give school officials the issuance of certificates, but determined opposition has already shown itself to the ten-hour day and the abolition of night-work provisions in our second bill. Another court decision—the fourth within four years—has overthrown an additional part of the existing child labor law. This, however, only makes the passage of our bills more necessary.

FRED S. HALL,
Secretary.

ALLEGHENY COUNTY (PA.) CHILD LABOR ASSOCIATION.

The Chairman of the Legislative Committee of the Child Labor Association of Allegheny County, Pennsylvania, has authorized me to make the following report of the work done by this Association:

Since April, 1908, the Association has been occupied mainly in working in co-operation with the Pennsylvania Child Labor Association in framing bills to be presented to the Legislature now in session. Since December 1st, active measures have been taken to create public opinion throughout the district and in organizing the work here. The services of a directing secretary have been secured to extend the work.

ALIDA LATTIMORE,
Directing Secretary.

THE RHODE ISLAND JOINT COMMITTEE ON CHILD LABOR.

The Joint Committee on Child Labor—formed in Rhode Island in January, 1908, and composed of representatives of local educational and philanthropic societies, as well as sub-committees of the Rhode Island State Child Labor Committee—is continuing during the present winter its active campaign for an improved child labor law. A bill amending the law in four particulars was introduced in the assembly in 1908. It passed the House, but failed of passage in the Senate. A bill similar in its provisions has been introduced this year and is now in the hands of the Senate committee on special legislation. A public hearing on the bill is promised within a few days. Meanwhile the Rhode Island State Federation of Women's Clubs has published a simplified statement of the present Factory Inspection Law of the state, which controls the labor conditions of the women and children, and has also supplemented the statement with the amendments proposed to the present law and the reasons why such amendments are deemed wise and practicable, asking each member of the Federation to bring these amendments and the arguments in their favor to the attention of their local representatives in our assembly.

The Committee is hoping for the successful passage this year of these four amendments:—1st. 7 p. m. instead of 8 p. m. shall end the day's work for children under sixteen years of age in all factories, manufacturing or business establishments. 2d. The privilege now held by mercantile establishments of keeping children under sixteen years of age late on Saturday nights and for the four days preceding Christmas shall be withdrawn. 3d. An educational test, viz., the ability to read and write simple sentences in English, before granting working certificates to children under sixteen years of age. 4th. The employer of a child who claims to be sixteen years of age but whose appearance causes the factory inspector to doubt it, shall be required to furnish satisfactory proof of the claim.

MRS. CARL BARUS,
Chairman.

CITIZENS' CHILD LABOR COMMITTEE, WASHINGTON, D. C.

A law for the regulation of child labor in the District of Columbia was passed by the National Congress and approved by the President on May 28th, of last year. This law is the result of three and a half years' effort on the part of the National Committee and of the local Committee organized at the suggestion of the National Committee. The law as passed contains some features which were opposed by the friends of the measure, but which finally had to be accepted. The measure was passed practically in the shape recommended by the National and local Committees, with several sections added which regulated street trading on the lines of the New York law. A proviso was inserted by the Senate permitting the judge of the Juvenile Court to exempt children under the limit of fourteen years, but over twelve years of age, if they were the support of dependent relatives.

Unfortunately the appropriation bill as passed by Congress contained no provision for the inspectors authorized by the act. The Commissioners of the District did the best they could under the circumstances by detailing two policemen for this duty, and these officers are engaged in filling these positions at the present time. Owing to the lack of appropriations, it was not possible to announce the enforcement of the law until August first of last year, and even then, the first month was taken up in the preliminary work of explaining the provisions of the law to dilatory employers and parents. The actual enforcement of the law therefore took place about the first of September, 1908. The following report on the effect of the law refers only to the four months ending December 31st, 1908.

For this period, the most important event has been the work of providing the children with age and schooling certificates. The law provides that these certificates shall be issued by the school board and experience seems to show that for this jurisdiction the school authorities are best qualified to perform this duty. The age of children is secured for school purposes some time before the question of employment arises and is therefore likely to be reported correctly. By requiring each applicant for an employment certificate to bring with him his last school report, the officials

are enabled to secure immediate information on the point of educational qualifications. For the greater part of the applicants—approximately ninety per cent. of the whole number—the school authorities are thereby in a position to decide immediately as to the age and educational qualifications of the children seeking employment certificates. In addition to these two points, the board of education took the commendable action of detailing two of the school medical inspectors to the work of examining each child who applied for a certificate. While the physical examination was necessarily somewhat restricted, each of the 3200 children was examined as to heart, lungs, spinal curvature and general physical development. Although certificates were refused on account of poor physique in but few cases, a number of provisional certificates were issued, such as certificates permitting only outside work in cases of children having weak lungs, etc.

The problem of securing proper evidence of age in the case of children who had not been recently in attendance at the schools, has proved a source of considerable difficulty. In the first place, registration of births in this city has been strictly enforced only during the last few years, so that the records of the board of health have been of little assistance. In the second place, few of the children possess baptismal or other church certificates containing information as to age. The result is that for the great majority of the children not possessing school records, the oath of the parent or guardian as to the age of the child has to be accepted. Such evidence is frankly conceded by the administrative officials to be of little value, but in such cases the only course open has been followed—namely to emphasize the educational test and the examination by the school physician.

The effect of the exemption clause in the law, which reduced the age limit from fourteen to twelve in cases of poverty, has been observed with especial interest because the census of 1900 showed that approximately one-third of the child bread-winners of this city were orphans. The power to make exemptions is vested in the Juvenile Court. The head of that court has shown a full appreciation of the importance of this phase of the problem, and has granted such exemptions only after the need of the child's earnings has been clearly established. In view of this fact, it may be said that the harm of the exemption clause has been restricted to a minimum.

The number of children under sixteen years of age who have received employment certificates is as follows: Street trading certificates, 1700; general employment certificates, 1478. The working children, according to these figures, constitute approximately one per cent. of the total population, and approximately ten per cent. of the total number of children under sixteen years of age.

HENRY J. HARRIS,
Secretary.

WISCONSIN CHILD LABOR COMMITTEE.

Wisconsin child labor conditions are not materially changed since reported upon in the spring of 1908.

The biennial session of the Wisconsin Legislature is just beginning and several amendments will be offered to the child labor law, as amended by the legislature of 1907. It has been a custom in Wisconsin, and we think a wise custom, to allow a child labor law, when radically amended, to be tested for four years without important amendments by the intervening legislature, that the law may be given a chance to demonstrate its usefulness and its weak points. That plan will be followed this year and it is hoped that there may be an improvement in the educational test by a requirement of a teacher's certificate. At present the burden is thrown upon the officers granting the permit to test the child's knowledge of English. This is wrong in principle and works out inconveniently in practice. The factory inspector's office, upon which much of the work of granting permits falls, requests that a teacher's certificate, as to education, should be required before permit is given. It is hoped that the legislature will improve the law in various minor but important details.

Very little harm has apparently resulted under the "perishable goods clause," on which report was made in 1908, because of a strict construction of the act by the attorney general's department, and perhaps because there have been many prosecutions; but the clause is thoroughly bad in principle and condemned by experience in other states. We hope that it will be struck out of the law this winter.

As to the fifty-five hour clause, the testimony of those who know is that it is working well and that on the whole it is being faithfully obeyed and that it is not resulting, as it has in some other states, in children working sixty hours a week instead of fifty-five. We trust the time will come, and speedily, when Wisconsin can have a nine hour day.

There is increasing dissatisfaction felt with the exemption of newsboys from the general operation of the child labor law and a growing feeling that there should be a special newsboys' and street trades act along the line of the acts in New York and Massachusetts. It is hoped that a law of this kind may be passed at the present session of the Legislature.

Under the Wisconsin law of 1907, the number of permits issued to children under sixteen has been reduced to about thirty-five per cent. This is a striking feature in view of the great demand for children's work. In addition to the possible reduction of child labor because of the financial stringency (not always operating largely to reduce child labor) the reduction in the number of permits issued results from the dangerous employment clause of the law of 1907, which we believe to be one of the most thorough and complete of its kind in the United States, and because of the increasing strictness in issuing permits, especially in the factory inspector's office, where probably much more than half of the permits of the state are issued.

The most striking recent feature of the child labor situation in Wisconsin

sin is the increasing demand for young girls' work in factories, including tanneries, and there are many instances reported where men have been replaced by girls and often by girls between fourteen and sixteen. We have grown accustomed to the demand for girls in household work and the fact that it was hard to fill that demand, but it is a newer feature of the situation to have a demand for young girls in factories which is in excess of the supply.

The factory inspector's office asks for two more assistant factory inspectors and they seem to be thoroughly needed.

In closing it should be said that the cause of child labor in Wisconsin is greatly helped, especially in Milwaukee County, by the increasing efficiency of the work of the probation officers in the Juvenile Court and by the most helpful work of the truancy department of the public schools. Experience has shown that the best results can only be obtained when child labor, Juvenile Court and compulsory education laws are kept as nearly as possible at an equal state of efficiency so that each may help the other in handling its peculiar problems.

EDWARD W. FROST,
Chairman.

REPORTS FROM THE SOUTHERN STATES.

Virginia.

The age limit for the employment of children in factories went to thirteen in Virginia the first of January, 1909, and will reach the standard of fourteen in January, 1910. Virginia has also a rudimentary compulsory attendance law which should help the cause of child labor reform when both laws can be enforced. The principal need in Virginia is factory inspection.

North Carolina.

The North Carolina Child Labor Committee met early in January and agreed to press for two or three changes in the present child labor law:—the shortening of the hours from sixty-six a week to sixty, the raising of the age limit for night work from fourteen to sixteen and the provision for a factory inspector under the Bureau of Labor. A bill has been introduced by Representative J. W. Hinsdale, of Raleigh, going farther than these proposals in the line of child labor reform, but the result is problematical. I note that the Committee of Manufactures and Labor, of the Senate, is composed mainly of cotton mill owners, and any bill that gets through the Senate must be passed in spite of an unfavorable report from this Committee, or must be subjected to their tender mercies by way of amendment. A large lobby, of fifty manufacturers, is urging, in Raleigh, the defeat of the Hinsdale bill. Nevertheless, some advance may be gained. At present the commissioner of labor has no authority to enter a factory for inspection, though it is to be hoped that the new commissioner will do something more for the enforcement of the child labor law than his predecessor did.

South Carolina.

The South Carolina Legislature is also in session. One or more amendments have been offered to the child labor bill, and a compulsory school attendance bill has also been introduced. As already noted, the cotton manufacturers have said they will not object to the raising of the age limit to fourteen, if the compulsory attendance bill is passed, but I have heard of no great activity for the passage of the latter measure, which they claim to have been favoring for years. I understand that an amendment forbidding night work for children under sixteen will not be objected to, as there is very little night work in South Carolina. I have described elsewhere¹ how flagrantly the present child labor laws are being violated in both the Carolinas without factory inspection. Governor Ansel, in South Carolina, as did Retiring-Governor Glenn and Governor Kitchin, in North Carolina, advocated the initiation of a factory inspection system in their messages to the legislature.

Florida.

The Florida Legislature meets in March. Preparations are being made by the labor unions, the women's clubs and other organizations standing for the cause of the working children, to raise the age limit in Florida from twelve to fourteen, and to make the law more effective in other ways.

Tennessee.

The principal need now felt in Tennessee is greater authority for the factory inspector and better provisions of law relating to sanitary and safety appliances. These measures, which, I understand, are already being advocated by the labor unions, are to be pressed to a conclusion with the help of the Tennessee Child Labor Committee. The Legislature is now in session.

Georgia.

The Georgia Legislature meets in June. The Georgia Child Labor Committee has been contending for some time for the sixty hour week, the repeal of the exemption clause of the present child labor law, and the inauguration of factory inspection. It is hoped that these efforts will be successful at the approaching session of the Legislature.

Alabama.

In Alabama we have only to note that the recent law has not been enforced owing partly to the long illness, followed by death, of the factory inspector, Dr. Shirley Bragg. His successor has recently been appointed, Dr. Thomas G. Bush, and a new chief mine inspector, Edward Flynn. It is hoped that the new force will be able to carry out the provisions of the inspection law and that there will result a more careful observance of the child labor law.

¹See pp. 63-72.

Mississippi.

One of the amusing things about the Mississippi situation is the attitude of the manufacturers over the passage of what they call the "drastic" law forbidding children under twelve to work in factories and children under sixteen to work more than fifty-six hours a week or more than ten hours a day. At first they went into the newspapers with the threat to discharge all their employees under sixteen years of age. But as it had already been ascertained that twenty-five per cent. of the employees were under fourteen, this proposition was reconsidered. So the expedient has been adopted of keeping the actual time at which the doffer boys are at work, and letting the girl spinners come an hour later in the morning or leave an hour earlier in the evening. There is printed elsewhere in this volume an article by Senator McDowell, author of the child labor law. The Mississippi Child Labor Committee has been a vigorous defender of the cause of child labor reform in the public press, and numbers among its members some of the most distinguished citizens of Mississippi.

Louisiana.

The fight for the passage of the best child labor law yet enacted in any Southern state is described in the article by Miss Jean M. Gordon, published in this volume. The passage of this law was mainly due to the persistent efforts of Miss Gordon, the state factory inspector of Louisiana.

Texas.

There is no organized effort as yet to amend the Texas Child Labor Law, especially as it has an age limit of sixteen in mines and there are comparatively few factories where children are employed. The Texas Legislature is now in session, and I have been in correspondence with individual citizens with regard to raising the age limit in factories from twelve to fourteen.

Arkansas.

No report has been received from this state.

Oklahoma.

A new child labor bill has been introduced into the Oklahoma Legislature, now in session. It has passed its second reading in the Senate, and, I understand, the Governor has agreed not to veto it this time. It is an excellent bill as it stands and it is hoped that Miss Kate Barnard, the Commissioner of Charities, will have her long and persistent fight for its passage rewarded with speedy victory.

A. J. McKELWAY,

Secretary for Southern States, National Child Labor Committee.

Annual Report of the General Secretary of the National Child Labor Committee

For the Fourth Fiscal Year, Ended September 30, 1908.

I. LEGISLATION—STATE

- In the fourth fiscal year important changes were made in the child labor laws of eight states: Kentucky, Louisiana, Massachusetts, Mississippi, New Jersey, New York, Ohio and Virginia.

The advance in standards of protection in Southern States is marked, notably the laws enacted in Kentucky and Louisiana. In Louisiana a fourteen-year age limit is established, with the prohibition of night work for boys under sixteen and girls under eighteen years. The Kentucky law removes the poverty exemption, which weakened the old law, and requires proof of age, lengthens the compulsory school year, limits the hours of labor and forbids night work of children under sixteen. The new laws in Mississippi and Virginia show a healthy appreciation of the importance of child protection.

A law was passed in Massachusetts limiting the hours of labor for women and children under eighteen to fifty-six per week. The law takes effect January 1, 1910.

New Jersey enacted a compulsory education law, requiring school attendance of all children between the ages of seven and seventeen, except that children of fifteen who have completed the grammar grades and are regularly employed may be excused. This places the age limit for employment during the school period at fifteen years.

In New York a law was passed transferring the enforcement of the mercantile child labor law from local boards of health in cities of the first class to the State Labor Department, and providing for the creation of a bureau of mercantile inspection. This law became effective October 1st.

In Ohio an important measure was passed limiting the hours of labor for boys under sixteen and girls under eighteen to eight per day and forty-eight per week. This measure met earnest opposition from textile and shoe manufacturers, who contended that such a law would result in great hardship to industries and people because of interstate competition. Many of these manufacturers are adjusting their operations to comply with this law, and it is believed some of them will gladly co-operate in our efforts to secure an equally high standard in other states.

In Oklahoma a compulsory education bill and child labor bill were drafted by Dr. McKelway, who went to Oklahoma at the request of citizens of that state and by a special appropriation to cover his traveling expenses. The compulsory education bill was enacted. The child labor bill passed

the Senate by a vote of thirty-four to eight, and the House by a vote of seventy-nine to sixteen, but was vetoed by the Governor.

FEDERAL.

The District of Columbia child labor bill, already presented in two sessions of Congress, was again urged by this Committee, and after some amendments, became law on May 28, 1908.

The contention of many residents and certain Congressmen that no child labor existed in Washington was disproved by the number of applications for employment certificates immediately following the enactment of this law. Thirty-seven hundred and fifty-four children, at last report, had applied for employment certificates. Of these 3,579 were granted and fifty-four refused because lacking either in age or educational qualifications.

The Committee gave hearty support to U. S. Commissioner of Education, Dr. Elmer E. Brown, in his effort to secure an appropriation of \$40,000 for special investigations under the Bureau of Education, but the bill providing for this increased appropriation was denied by Congress.

The bill to establish a Federal Children's Bureau was not actively urged, as it was deemed wise to concentrate our efforts in aiding the campaign of the Commissioner of Education. By action of the Board of Trustees on April 29, 1908, the Secretaries were instructed to use all diligence at the coming session of Congress in seeking the enactment of this measure. Since that date the members of this Committee and representatives of kindred organizations have been circularized in its behalf.

II. INVESTIGATION.

Extensive investigations have been carried on in Georgia, Mississippi, North and South Carolina and Virginia under the direction of Dr. McKelway; in various parts of New England, especially in textile centers and the east coast of Maine, under the direction of Mr. Lord; in the glass, coal and mercantile industries and street trades of Ohio, Kentucky, Indiana and West Virginia under the direction of Mr. Clopper; and in Kansas, Missouri and Colorado by Mr. Morris.

In the investigation of cotton mills in Mississippi, Dr. McKelway and his assistants reported 25 per cent of the cotton mill operatives under the age of fourteen and 50 per cent of the children under that age as illiterate. It was largely as a result of this investigation that Senator McDowell was able to secure the adoption of the child labor bill. The opposition to this measure was from a lobby of cotton manufacturers, who succeeded in reducing the age limit from fourteen to twelve, with a sixty-hour week for children under sixteen. The bill provides for factory inspection by the local authorities of each county.

A tour of investigation through South Carolina mills revealed conditions similar to those in Mississippi with respect to the employment of children and the literacy of children employed. A similar investigation in Georgia showed somewhat better conditions, though laxness was discovered in the matter of issuing certificates of literacy and school attendance.

While the conditions revealed throughout the South indicate the need for vigorous legislative campaigns, there are more children at work in the factories of North and South Carolina than in all the South besides. North Carolina still allows the sixty-six-hour week, and South Carolina allows all children of any age to enter the mills if they are children of dependent parents.

Mr. Lord, the Secretary for New England, has made personal investigation of conditions in the cotton factories of Maine and New Hampshire and in the sardine canneries of Maine. He reports few children illegally employed in the cotton factories. He finds in the sardine canneries a very large number of young children, and conditions that warrant vigorous action to secure a law prohibiting their employment.

Mr. Clopper, Secretary for the Ohio Valley States, has made an investigation and presented a report on children in the street trades of Cincinnati, and has traveled extensively through the mining and glass regions of Indiana, Ohio and West Virginia, securing information as to the operation of the present laws and the need for further legislation. The work of forming state committees in Indiana and West Virginia progresses encouragingly, and the published results of the investigation should prove a valuable factor in the legislative changes these committees will seek in the coming winter.

The work of Mr. Morris, special agent of the Committee, from July 15th to November 15th, was begun in Kansas, and his field study has been made in the factory centers of Kansas and Western Missouri and in the beet-sugar fields of Western Kansas and Eastern Colorado. In those states, because of the predominance of native parentage, a healthy sentiment prevails as to the necessity for the education of children and aside from the beet fields the agricultural situation is good. In the beet fields it is becoming a common practice to employ young children for excessive hours and sometimes in large groups, resulting in the introduction of many of the objectionable features of factory employment.

III. RESEARCH.

On November 1, 1907, a special appropriation of \$500 was received to render available for the use of students the existing official information on child labor in America. Thus far the work has consisted in collating and indexing excerpts from annual reports of departments of labor and factory inspection and from state educational reports. A balance of \$161.13 of this appropriation is shown in the Treasurer's report.

IV. TRAVEL AND PUBLIC SPEAKING.

As public interest in this subject increases, demands for aid in local and state campaigns and calls to address public gatherings multiply. The secretaries have been called to fill a large number of public engagements, while volunteer speakers have been secured in many cases to respond to invitations coming to this office.

The personal assistance of our secretaries was given in the legislative

campaigns in Georgia, Kentucky, Massachusetts, Mississippi, New Jersey, New York, Oklahoma, Rhode Island and Virginia.

The Committee has been officially represented at the meetings of the Southern Textile Conference, Nashville, Tenn.; the National Conference of Charities and Correction, Richmond, Va.; the National Education Association, Cleveland, Ohio; the American Institute of Instruction, Burlington, Vt.; the International Association of Factory Inspectors, Toronto, Canada; the National Playground Congress, New York; the International Congress on the Prevention of Tuberculosis, Washington, D. C.; and the Biennial of the General Federation of Women's Clubs, Boston, Mass.

V. ORGANIZATION OF STATE AND LOCAL COMMITTEES.

State Committees have been formed during the year in Virginia, Mississippi and Kansas, and committees are in process of formation in Louisiana, California, West Virginia, Indiana, North Dakota, Minnesota and Massachusetts. Local committees have been formed in Newport News, Va., Bensonhurst, L. I., N. Y., and Los Angeles, Cal.

The reports from state and local committees presented at the fourth annual meeting attest the value of these organizations, and show an increasing appreciation of the importance of regulating child labor conditions by local forces. Fourteen state committees and two local committees reported.

VI. PUBLICITY.

The report of the fourth annual meeting held in Atlanta, Ga., April 2, 3 and 4, was published in full as a Supplement to the July, 1908, number of *THE ANNALS* of the American Academy of Political and Social Science, and the principal papers and addresses were published as separate reprints for distribution. Many of our earlier publications have been reprinted, and pamphlets, leaflets, charts and photographs issued dealing with special phases of the subject.

To keep the work of the Committee before the public, we have a carefully selected list of newspapers, to which interesting material is sent as occasion warrants, and an index of 12,000 clergymen enables us to communicate directly with the leading churches of the country. Our reports are sent regularly to all state commissioners of labor, state factory inspectors and state superintendents of education.

In the investigations conducted, wherever practicable, photographs and descriptions have been secured. These are published from time to time, either in the official publications of this Committee, or through the columns of magazines and newspapers.

The total publications of the Committee to the end of the fourth fiscal year form a series of eighty-four pamphlets and nineteen leaflets. The total number of documents issued in the year is 242,000, and the total pages aggregates 1,763,400. There should also be added 68,204 letters sent to individuals describing the work of the Committee. One hundred and thirty-eight volumes of the first, second and third annual reports have been sold and distributed to fifty-five libraries.

VII. CHILD LABOR DAY.

Child Labor Day was observed January 25 and 26, 1908. We reached the churches through the religious press, which generally published the official call and in many instances added able editorials in behalf of the work. It has been impossible to estimate the number of pulpits in which the subject was presented, but requests for literature came from many hundred pastors and our clipping bureau reported a large number of special church services. In the coming year it is proposed to send a personal invitation to 35,000 clergymen, asking them to observe the fourth Sunday in January as Child Labor Day.

VIII. EXHIBITS.

The charts, photographs and literature which were at Jamestown, Va., during the Exposition, were removed to Atlanta and exhibited in connection with the fourth annual meeting and have since been used at the National Conference of Charities and Correction, Richmond, Va., at the New York State Conference of Charities and Correction, Albany, and in the Atlanta, Boston and New York offices.

IX. FINANCES.

The receipts and expenditures of the Committee as shown by the Treasurer's report for the fourth fiscal year are summarized in the following items:

TREASURER'S REPORT FOR YEAR ENDING SEPTEMBER 30, 1908.

As examined, audited and found correct by Haskins & Sells, of New York, certified public accountants.

DEBITS.

Cash on deposit, October 1, 1907.....	\$2,971.84
Receipts:	
Paid subscriptions	\$30,662.39
Special subscriptions:—	
District work, Ohio Valley States....	\$2,500.00
Compilation of child labor literature..	500.00
	<hr/>
Sales of publications	3,000.00
Interest on bank balances	311.68
Miscellaneous receipts	54.61
	<hr/>
	68.95
	<hr/>
	34,097.63
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Total debits	\$37,069.47
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CREDITS.

Expenses:

Salaries—Administrative	\$8,200.01	
Clerks and stenographers	4,244.36	
		<u>\$12,444.37</u>
Stationery and office supplies	619.01	
Postage	3,059.27	
Investigation expenses	6,199.21	
Rent	1,535.41	
Traveling	1,695.58	
Printing	3,773.92	
Telephone and telegraph	297.45	
General expenses	425.22	
Legal expenses	79.00	
Purchase of material on child labor.....	107.45	
District work, Ohio Valley States	2,501.84	
Jamestown exhibit	538.57	
Compilation of child labor literature	338.87	
		<u>\$33,615.17</u>

Miscellaneous:

Furniture and fixtures	\$457.75	
Expenses of third fiscal year	74.46	
		<u>532.21</u>

Total credits \$34,147.38

Cash on deposit, September 30, 1908..... \$2,922.09

X. MEMBERSHIP.

During the year this Committee has lost the following members: Through death, Hon. Grover Cleveland; by resignation, Rev. John G. Anderson and Mr. Hugh F. Fox. There have been added to the Committee: Dr. Albert H. Freiberg, Mr. John Golden, Hon. Curtis Guild, Jr., and Mr. John Mitchell.

In the development of contributing memberships, the record of the Committee shows at the end of the year the following total:

Guarantors	23
Sustaining	484
Associate	2199
Contributing	176

XI. ADMINISTRATION.

At the first meeting of the Trustees, October 24, 1907, Mr. Lovejoy, who had been appointed Acting Secretary at the meeting of the Trustees, April 22, 1907, was appointed Secretary.

At the same meeting the Secretary was authorized to co-operate with the special committee on district work in attempting to secure a secretary for the New England States and one for the Ohio Valley States. Pursuant to this action, Mr. Everett W. Lord was engaged on January 1st to represent the Committee in the New England States. He at once established an office at 101 Tremont Street, Boston. Meanwhile, the disturbance of financial conditions in the country rendered the possible resources of the Committee doubtful, and it was deemed unwise by the members of the Finance Committee to carry into effect the action of the Board by establishing the Ohio Valley office, unless special aid could be secured. Application was accordingly made to friends of the National Child Labor Committee for a special fund of \$5,000 for the organization of state and local committees and for the study of conditions of child labor in the Ohio Valley States. This application was granted January 6, 1908, and on February 11th, Mr. E. N. Clopper was engaged conditionally to represent the Committee at Cincinnati and make a study of the local field. On April 15th, by action of the District Committee, Mr. Clopper was made Secretary for the Ohio Valley States, and on August 1st opened an office at 803 Union Trust Building, Cincinnati, Ohio. The development of intelligent interest in New England and in the Ohio Valley, the sections covered by our offices established last year, justifies a careful survey of other parts of the country to ascertain whether other district offices may wisely be established at this time.

At the meeting of the Board of Trustees held February 21, 1908, the following official titles were designated: General Secretary, Secretary for the Southern States, Secretary for New England, Secretary for the Ohio Valley States, Membership Secretary.

On August 15th, Mr. Lewis W. Hine was engaged to work under the direction of Mr. Clopper in securing photographs of working conditions in the Ohio Valley States. The results of Mr. Hine's work will be apparent in the photographs from which enlargements, slides and cuts for newspaper and magazine publicity are being secured.

Many requests for illustrated lectures are received at the office, and to meet these demands we have added to the stock of stereopticon slides. We have at present 256 slides, including duplicates.

On July 15th, Mr. Stephen P. Morris, formerly Secretary of the Associated Charities, Omaha, Neb., was engaged temporarily to aid in the formation of committees in the Western States, and his engagement was continued to November 15, 1908.

The development of district organization has considerably increased the staff of workers, while the enlargement of our correspondence with persons and organizations interested in this subject has greatly added to the work in the New York office. At this date the pay-roll consists of the following: 4 Secretaries, 1 Membership Secretary, 1 Special Representative in the Western States, 5 Stenographers, two in the New York office and one in each of the district offices—Atlanta, Boston and Cincinnati, 4 clerks in the New York office, 1 Photographer.

At the final meeting of the Board of Trustees for the fourth fiscal year the chairman, Dr. Adler, expressed his desire to be relieved during the coming year of the chairmanship of this Committee, on account of his absence in Europe as Theodore Roosevelt Professor of American History and Institutions, at the University of Berlin. The members present responded by expressing appreciation of Dr. Adler's able leadership, and the belief that his resignation from the chairmanship would do incalculable injury to the cause of child labor reform. Following this discussion, a resolution was offered by Dr. Lindsay, and seconded by Mr. Folks, the two Vice-Chairmen of the Committee, that Dr. Adler be given leave of absence for one year, and that Mr. Isaac N. Seligman be elected Chairman *pro tempore* during the period of Dr. Adler's absence. This motion was unanimously adopted.

The Secretary desires to express his appreciation of the assistance rendered by members of the Board of Trustees; the able work of the District Secretaries, the record of whose activities constitutes so large a portion of this report, and the cordial harmony in which all members of the staff have worked together.

Respectfully submitted,

OWEN R. LOVEJOY,
General Secretary.

The Proceedings of the Fifth Annual Conference on Child Labor Under the Auspices of the National Child Labor Committee

Chicago, Ill., January 21, 22, 23, 1909.

The first annual conference of this Committee was held in New York City, February 14 to 16, 1905. The second was held in Washington, December 8 to 10, 1905, with supplementary sessions in Philadelphia and Chicago. The third was held in Cincinnati, December 13 to 15, 1906, and the fourth in Atlanta, Ga., April 2 to 5, 1908.

At the fifth annual conference held in Chicago, January 21 to 23, the following program was carried out:

GENERAL TOPIC: THE CHILD WORKERS OF THE NATION.

I. Thursday Afternoon, January 21st, 3 o'clock.

Chairman, Isaac N. Seligman, New York, Chairman *pro tempore* National Child Labor Committee.

Organization, enrolment of delegates, etc.

Reports and papers from District Secretaries and General Secretary.

1. "Some Unsettled Questions About Child Labor," Owen R. Lovejoy, General Secretary.
2. "The Child and the Law," Dr. A. J. McKelway, Secretary for the Southern States.
3. "Child Labor in the Canneries and Textile Industries of New England," Everett W. Lord, Secretary for New England States.
4. "Child Labor in the Ohio Valley States," E. N. Clopper, Secretary for Ohio Valley States.

II. Thursday Evening, January 21st, 7.45 o'clock.

Chairman, A. C. Bartlett, Chairman Chicago Committee on Fifth Annual Meeting.

Prayer, Rev. Smith Thomas Ford, D.D., President Chicago Church Federation Council.

1. Opening address by Isaac N. Seligman, Chairman *pro tempore* National Child Labor Committee, "The Duty of a Rich Nation to Care for Her Children."
2. Response, Prof. Charles R. Henderson, representing the Governor of Illinois.

3. The Federal Children's Bureau.

Ten-minute addresses:

Leo Arnstein, New York.

Prof. Charles R. Henderson, University of Chicago.

Judge Ben B. Lindsay, Denver, International Juvenile Court Society.

Jane Addams, Hull House.

Dr. Henry Baird Favill, Chicago, National Association for the Study and Prevention of Tuberculosis.

Samuel McCune Lindsay, Ph.D., Professor, Social Legislation, Columbia University, New York.

4. Stereopticon address, "Types of Working Children," Dr. A. J. McKelway.

III. Friday Morning, January 22d, 10 o'clock.

Chairman, Isaac N. Seligman.

STATE AND LOCAL COMMITTEES—REPORTS AND DISCUSSIONS.

1. Exemptions to child labor laws on account of poverty, vacation, etc.; whether such exemptions exist, and if not, when and why repealed. Discussion opened by Edward W. Frost, Chairman, Wisconsin Child Labor Committee.
2. Employment certificates. Should they be issued by school authorities, members of health boards, judges, notaries, factory inspectors? Discussion opened by Mrs. H. M. Van Der Vaart, Secretary, Illinois Child Labor Committee.
3. Evidence of age. When documentary evidence cannot be procured, what procedure to obtain further evidence? Discussion opened by George A. Hall, Secretary, New York Child Labor Committee.

IV. Friday Afternoon, January 22d, 2.30 o'clock.

Chairman, Dr. Frank Billings, Chicago.

CHILD LABOR A MENACE TO THE NATIONAL HEALTH.

1. "Overworked Children on the Farm and in the School," Dr. Woods Hutchinson, New York.
 2. "Some Effects of Improper Posture in Factory Labor," Dr. Albert H. Freiberg, Cincinnati.
 3. "Child Labor and the Juvenile Court," Dr. James A. Britton, Chicago.
 4. "The Roentgen Ray as a Factor in Child Labor Reform," Dr. Thomas Morgan Rotch, Boston (with Stereopticon).
- Discussion by Dr. Henry B. Favill, Dr. Frank Billings and others.

V. Friday Evening, January 22d, 7.45 o'clock.

Chairman, Isaac N. Seligman.

CONTRIBUTIONS TO THE PROTECTION OF CHILDHOOD.

1. "The Relation of Public Education to Child Labor," Andrew S. Draper, Ph.D., State Commissioner of Education, Albany, N. Y.

2. "Practical Restrictions on Child Labor in the Textile Industries under Higher Educational and Physical Qualifications," Howell Cheney, Cheney Silk Mills, South Manchester, Conn.
3. "Scholarships for Working Children," Mrs. Florence Kelley, New York, General Secretary, National Consumers' League.
4. Stereopticon address, "Injurious Physical Effects of Premature Employment," Dr. Albert H. Freiberg, Cincinnati.

VI. Saturday Morning, January 23d, 10.30 o'clock.

Chairman, Homer Folks, Vice-Chairman National Child Labor Committee.

SYMPOSIUM OF FACTORY INSPECTORS.

1. "The Present Situation in Illinois," Hon. Edgar T. Davies.
2. "Uniform Systems of Child Labor Statistics," Hon. John Williams, New York.
3. "The Forward Step in Louisiana," Miss Jean M. Gordon, New Orleans, La.
4. "Accidents to Working Children," Edwin W. De Leon, New York, First Vice-President, Casualty Company of America.
5. Discussion of:
 - (a) Vacation work and vacation permits.
 - (b) Acts regulating street trades.
 - (c) The regulation of child labor in sweat-shops, home industries, etc.
 - (d) Advisability of prosecuting parents as well as employers.
 - (e) Child labor statistics.

VII. Saturday Afternoon, January 23d, 2.30 o'clock.

Chairman, Dr. Samuel McCune Lindsay, Vice-Chairman, National Child Labor Committee.

1. "Handicaps in Later Years from Child Labor," William E. Harmon, New York.
2. "The Difficulties of Child Labor Legislation in a Southern State," Hon. James R. McDowell, Jackson, Miss.
3. "Children in Dangerous Occupations," Charles W. McGinniss, Wheeling Stamping Co., Wheeling, W. Va.
4. Reports from State and Local Committees. (Continued.)
5. General Discussion.
 - Effectiveness of State Labor Departments.
 - Adequate school law enforcement.

A reception to delegates was given by the Chicago Woman's Club at the Fine Arts Building, Thursday afternoon, at five o'clock.

Speakers and members of the Local Committee were entertained at luncheon at Hull House, 335 South Halsted Street, on Friday, at one o'clock.

The various Committees in charge of the local arrangements for the meeting did excellent work and their efforts, as well as those of the Chicago

Federation of Woman's Clubs, the residents of Hull House and various others were given an enthusiastic vote of thanks by the conference, at its close.

The local Committees were composed as follows:

Officers.—Chairman, A. C. Bartlett; Vice-Chairman, Mrs. H. M. Wilmarth; Secretary, Mrs. H. M. Van Der Vaart; Treasurer, W. F. Dummer.

Executive Committee.—Jane Addams, Dr. Frank Billings, Mrs. I. S. Blackwelder, Mrs. Emmons Blaine, Supt. E. G. Cooley, Hon. Edgar T. Davies, Dr. Henry B. Favill, J. Fitzpatrick, Mrs. Henry Hart, Prof. Charles R. Henderson, Mrs. Ellen M. Henrotin, Dr. Emil G. Hirsch, Judge Julian W. Mack, Cyrus McCormick, George Perkins, T. W. Robertson, Julius Rosenwald, Dr. Graham Taylor, T. K. Webster.

Committee on Halls.—F. T. Hopp, Henry Thurston, Sherman Kingsley.

Press Committee.—Graham R. Taylor, Luke Grant, H. E. Fleming.

Finance Committee.—Mrs. J. T. Bowen, Allen Pond, W. F. Dummer.

First Session.

At the first session, held in the banquet room of the Auditorium Hotel, the Chairman, Mr. Isaac N. Seligman, presided, and reports on the work accomplished during the past year were presented by the General Secretary and the District Secretaries and appear in full in other parts of this volume.

Second Session.

At the second session, Mr. A. C. Bartlett, of Chicago, presided, and the meeting was opened with prayer by Rev. Smith Thomas Ford, D.D., President of the Chicago Church Federation Council. Mr. Bartlett said:

Members of the National Child Labor Committee, Ladies and Gentlemen: While the delegates to this conference are cordially welcomed to Chicago, it does seem a travesty upon the much boasted civilization of the twentieth century that you have come together at the very heart of this great prosperous Christian country to consider the fundamental,—yes, the elemental questions of common humanity which you are here to discuss.

While the men and women, and a very large proportion of the children of the United States are living in the twentieth century, a comparatively small number of helpless boys and girls are living in the Middle—in the Dark Ages. And this condition is not by common consent of our citizens, adults and minors, but is due to the greed for wealth, the enterprise of a few manufacturers, miners, and sweat-shop conductors, and to the ignorance or poverty of natural, or the rapacity of unnatural, parents.

It is difficult to conceive that in this what I have called Christian country, it is necessary to enact and enforce laws against depraving, against the more or less slow murder of children, for the sole purpose of acquiring dollars, but experience has taught that the process of Christianizing some of our otherwise respectable and Christian citizens is too slow, and that we must appeal to the law-making bodies and to the executive branches of government for relief from this condition of child enslavement. And so this National

Committee and other kindred organizations are informing, educating, arousing our intelligent people to a realization of this injustice, of the crimes which are committed against these wards of ours, and urging promptness and universality of action. Much has been accomplished in the different states, but if I understand the situation correctly, you are not asking for action in the individual states of the Union so much as for federal legislation that shall be at once comprehensive and conclusive.

In furtherance of this object, you are holding this conference, confident that the good work done in former meetings of this kind will be continued through wide publication of the discussions, by eminent men and women, you are here holding.

Among those who will be prominent in these discussions is a gentleman of whom a New York citizen recently said:—"No real reform is inaugurated and prosecuted in our city which does not have the moral and financial support of this gentleman."

I have the honor and pleasure of introducing Mr. Isaac N. Seligman, of New York, who will address you upon "The Duty of a Rich Nation to Care for Her Children."

Following the opening address by the Chairman of the National Child Labor Committee, Prof. Charles R. Henderson responded as the personal representative of the Governor of Illinois, and read the following letter from the Governor:

"MY DEAR SIR:—I acknowledge the receipt of your letter of the 17th inst., enclosing tickets to the annual meeting of the National Child Labor Committee. I thank you very much for your courtesy in enclosing the tickets and for your kindness in consenting to represent me at the conference, which I regret I am unable to attend personally.

"I am very much interested in industrial questions, and especially in the problem of child labor. I have been much gratified at the progress which Illinois has made in recent years in lowering the percentage of child labor employed in our manufacturing establishments. This has been steadily reduced and is now but 1.2 per cent. of the total number of employees, the lowest percentage shown by any state from which reports have been obtained.

"These results have been achieved through the co-operation of the State Factory Inspection Department, school officials and others. I am informed that the present policy has restored to the schools of Chicago alone more than 16,000 children.

"Two years ago the maximum age of compulsory school attendance was fourteen years and children between that age and sixteen were no longer subject to the control of the school authorities. The last General Assembly enacted a law providing that between the ages of fourteen and sixteen years children, when not employed, must attend school. Great benefit has followed from this enactment and the school attendance throughout the state has been increased by many thousands.

"I trust that the deliberations of the conference will result in the further

amelioration of conditions surrounding children and you have my hearty good wishes to that end.

"Kindly express my regret at my inability to attend the conference.

(Signed) "CHARLES S. DENEEN."

The addresses of Mr. Seligman and Prof. Henderson are published in full elsewhere in this volume.

The special topic of the evening was the Federal Children's Bureau and brief addresses urging the establishment of this Bureau are reported in the symposium under that head.

The session closed with a stereopticon address on "Types of Working Children," by Dr. A. J. McKelway. The speaker presented a large collection of photographs taken from Southern cotton mills and from Northern child-employing industries, tending to show not only the types of children employed, but various effects of such employment.

Third Session.

At the third session, reports were presented from state and local Committees and appear in this volume under their proper titles. The special topics for general discussion were as follows:

(1) Exemptions to Child Labor Laws. In leading the discussion on this topic, Mr. Edward W. Frost, Chairman of the Wisconsin Child Labor Committee, said:

"Exemptions in child labor laws are to child labor workers what indiscriminate giving is to the laborers for scientific charity. They are our thorn in the flesh—our constant provocation to wrath.

"The man or woman who is responsible for the passage of a child labor bill and its management before the legislature, can never know at what moment some harmful amendment exempting certain classes of children or all children in certain industries will be sprung upon the legislature. Eternal vigilance is indeed the price of a good child labor law. However moderately and carefully it may have been drawn, and whatever smooth sailing may seem to be before it, there are rocks and perils ahead until the last vote has been recorded and the governor has attached his signature to the bill. Even then constitutional questions in the courts and the ever-present dangers from lack of public interest and understanding or from inefficient enforcement confront our law on every hand.

"When those of us who have come to bear these responsibilities meet at times like this in 'experience meetings,' we naturally recount our struggles and compare the widely differing conditions which confront us North and South. Uniformity seems often almost hopelessly far away and sometimes we are almost ready to wonder whether the struggle is after all worth while. Or sometimes forgetting the division of powers in our scheme of government and the necessity of local initiative and responsibility we are tempted to seek some royal road to uniformity, some short cut to our goal in the visionary form of a federal child labor law. We must fairly face the fact that exemptions represent an inevitable stage of progress in the development

of child labor laws. They are quite as often the product of good though often ignorant purpose as of evil intent. They represent a natural step in the evolution of the model law. Without them the first child labor law of your state, the hardest to get, whose passage was the greatest victory in your long war, could never have been obtained. Be patient as the framers of good laws have ever been patient. In our frequent mourning over harmful exemptions, let us not forget that the brewer or tinware manufacturer, proud of his business and confident that young boys and girls working for him are well cared for, and exposed to no undue risks, feels the same discouragement and wrath when he is confronted by a law which excepts or exempts his business and refuses him the right to employ children as other manufacturers do. With what enthusiasm would he not echo the statement in the National Consumers' League handbook—"The best child labor law has no exemptions?"

"For many years at least there is little likelihood of such uniform child labor laws as would be possible in a small and compact European state and under a highly centralized government. While we may hopefully advocate great central points for every child labor law, the wide diversities of climate and population will make exceptions and exemptions necessary. Who among us, however high his motive and faithful his service, has yet attained to his own standard of a child labor law? Do we not all regret the exemptions in the laws of our several states? And who has not seen to his sorrow an exemption once struck out, re-enacted in response to the demand of some 'interest' or at the request of some well-meaning and misguided friend of the children.

"In this short paper, whose purpose is to state the general situation and to open the way for discussion of special exemptions and specific problems, there is no opportunity to discuss the wisdom or unwisdom of the most common exemptions. For general purposes they may be grouped in two classes.

"(a) The harmful exemptions whose purpose is apparently to keep certain occupations and certain classes of children outside of the beneficent protection of child labor laws and

"(b) Exemptions benevolent in their purpose, but often harmful in practice.

"Under the first class would clearly come exemptions which permit night work for children under sixteen, work in school hours for children under fourteen and work at certain dangerous or unwholesome employments where their work is believed to be economically productive. Fortunately each year lessens the number of such exemptions though they are sadly common still. Under the second class would come such exemptions as that which is such a blot on the new District of Columbia bill, permitting little children to work in school hours to aid in the family support, and in some states to work late on Saturday evenings or in the holiday season, or, lest little children should play too much, permit them to work without permit or restraint in street trades, as newsboys, or in messenger service. Vacation work

for children under fourteen would be placed by many students in this same class.

"There is such a thing as righteous wrath. There is more rarely than we think, a time roundly to denounce unwise exemptions and possibly the men who advocate them. But we who often grow impatient of public ignorance and indifference as to child labor dangers must remember our own recent indifference and ignorance and how much we have yet to learn.

"And especially, if I may speak from the standpoint of one who has appeared before many legislative committees on behalf of many children's measures, must we guard ourselves, there and elsewhere, against wholesale and indiscriminate denunciation of employers and against a scornful or uncompromising attitude toward amendments which seem to us unwise or do not fit into our general plan. Few endeavors call for more patience, tact and skill than a legislative campaign for a stronger child labor law or in defense of a threatened law.

"The men and women who are working for the improvement of conditions of children, and especially for better child labor laws, have an inestimable help in the confidence that they are engaged in one of the noblest and most unselfish of human endeavors and that for the present, at least, they have behind them the best and most intelligent spirit of the age. It is pre-eminently the children's day, their needs, their rights, their possibilities have never before loomed so large on the world's horizon. The stars in their courses are fighting for the children and whether or not there are occasional defeats and the weariness of hope deferred, we are certain that by others if not by us this victory will be won on behalf of the children of the world."

MISS JANE ADDAMS, of Hull House, added: "I wish to call the attention of the conference to the fact that every statute dealing with child labor which has been pronounced unconstitutional by any court in the last five years has been so pronounced on account of its exemptions."

(2) Employment Certificates. This discussion was opened by Mrs. Harriet M. Van Der Vaart, Secretary of the Illinois Child Labor Committee, who said in part:

"A child labor law is effective or ineffective very largely in proportion to the method that is used in giving the working certificate.

"A number of years ago, here in Illinois, these certificates were left in the hands of notaries. We found on investigation that the law was almost ineffective. In the factories one-third of the children at that time were below the required age. An undertaker, the proprietor of any little shop in the neighborhood, could become a notary and give certificates to the children of his acquaintances in that neighborhood. Parents did not seem to realize that a solemn oath was required on their part to obtain this certificate, but looked at it simply as a permit which it was necessary to obtain before the child was allowed to go to work. Sometimes the parent did not even accompany the child, but would write a note to some friend who was a notary, asking him to make out the necessary papers to allow the child to go to work.

"It would, in my judgment, be a mistake to place the issuing of certificates in the factory inspector's office, as the inspector would then be placed in the position of investigating his own work.

"The placing the responsibility of issuing the final certificate in the hands of the school authorities is perhaps the best plan, but this, too, must be safeguarded. The experience in Chicago illustrates the necessity for this. When our present law went into effect, the issuing of certificates was left in the hands of the school authorities, which was interpreted to mean that the head of every parochial school and of every public school throughout the state had the responsibility of giving the necessary paper allowing the child to work.

"For three months investigations were made of the schools located in the industrial districts to learn if the working certificates were being given to the children of fourteen. Many facts were secured showing that children were getting certificates who were not entitled to them. In a very short time it was discovered that the law, because of this system, would again be largely ineffective.

"Conferences were held with Archbishop Quigley and Superintendent Cooley, which finally resulted in establishing a central office for the giving of these certificates. A representative of the parochial schools and a representative of the public schools give the certificates.

"Since this time the child who wishes to go to work must first get his school, birth or church record, and then, with his parent, go to this central office where the child is measured and weighed, the oath of the parent is taken and if the proof of age is satisfactory the working certificate is given. For the last five years this central office has been a part of the regular enforcement of the law in Chicago. This clause should be in the law and enforced throughout the state. It was also discovered that there was another loop-hole to the law, viz., a clause which says children seeking certificates without having regular proof of age may go before the county court and the oath of the parent or guardian will be accepted in place of the required proof of the child's age. As the law did not provide any means of ascertaining the facts about these children and learning if there were any proofs of the child's age, parents were not slow in finding out that the certificate could be easily obtained from the county judge. Judge Carter, of the county court, called a conference of interested people, which resulted in the Secretary of the Consumers' League undertaking the investigation of the ages of the children who come to the county court. Her recommendation is accepted by the judge, who sends the child to the central office, where the paper from the court is taken in place of the school, birth or church record, and the working certificate given. In these two directions voluntary work is doing much for the effective enforcement of the child labor law in Chicago. Experience has proven to those interested in the enforcement of this law in Chicago that the giving out of labor certificates from one central place is the most effective way of safeguarding the working child."

Mr. Ryder, of Nebraska, urged the importance of having employment certificates issued by school authorities. He said, "I find that they will not

abuse the privilege, that they rather lean to the side of keeping the child in school than exempting him."

A delegate inquired about the issuing of certificates for parochial school children and Mrs. Florence Kelley replied: "Parochial school evidence is no better than public school evidence. In New York it is taken in exactly the same way as public school evidence. The child must bring the statement of the executive officer of the parochial school that the child has finished five years of the work of the school. In addition to that, it must bring its birth certificate entirely independent of the school, must read and write to the satisfaction of the examiner for the Board of Health."

MR. DAVIS, of Massachusetts: "There is no child labor law in the State of Massachusetts which the parochial school is obliged to keep. They keep no register unless they feel like it; they make no reports to the truant officers unless they feel like it; the parochial school will not invite the truant officers of their own account and the truant officers need not visit the parochial schools. From all that I can learn here in Chicago, I understand that almost the same difficulty exists here. Without any question, in my judgment, our law regarding compulsory education and the issuance of certificates breaks down absolutely at the point of parochial schools."

Another delegate replied: "I am a truant officer of the city of Chicago. We always go to the parochial schools and have for one year. Before that time, in my eight years' experience, I found that almost every priest welcomed me and helped to explain the difference between the private and public school. They are not compelled by law, but there is an agreement between the archbishop and the superintendent of compulsory education and they are glad to make the agreement."

(3) Evidence of Age. When documentary evidence cannot be procured, what procedure to obtain further evidence? Mr. George A. Hall, Secretary of the New York Child Labor Committee, opened the discussion as follows:

"In view of the great tide of immigration at the port of New York, probably no other city in the country has had to face so much difficulty in enforcing the requirement of the New York State law that children who desire employment certificates must produce proof of age. Recognizing this situation, the New York Child Labor Committee has been making, since its organization in 1902, a constant study of this whole question. Having ample proof that parents' affidavits as sole evidence of age could not be safely relied upon the Committee in 1903 amended the law so as to require the filing of documentary evidence (birth certificate, baptismal certificate or passport) it was found, after two years under this law, that some two thousand children in New York City could not produce such evidence, and being refused 'working papers' in many instances went to work illegally. To prevent this, and to obviate a growing antagonism to the law among school officials and others, the Committee amended it to permit the acceptance as proof of age (provided only that the usual documentary evidence could not be furnished) of what was called 'other documentary evidence' such as transcripts of Ellis Island record certifying as to the age of the child on date of arrival, transcripts of hospital, relief society and institutional

records, family bibles, vaccination certificates, etc. This change was beneficial in helping a considerable number of children to obtain certificates who otherwise would have failed. During the year 1908, in one borough only (Manhattan) in New York City, 890 children were granted certificates upon evidence described above. While refusals for insufficient evidence of age were thus materially reduced, it was learned that many children were still unable to get any of the kinds of evidence allowed by the law. As this difficulty existed chiefly in the larger cities the Committee again secured an amendment to the law, making it possible for children in New York, Buffalo and Rochester, in case none of the other kinds of evidence mentioned in the law could be produced, to obtain certificates after having undergone a physical examination independently by two physicians of the Department of Health, if such physicians were willing to sign a certificate that in their opinion such children were fourteen years of age and upwards. The amendment provided an interim of ninety days between the filing of the application for such physicians' examination and the actual examination in order to allow sufficient time for a thorough search for any of the regular kinds of documentary evidence. This law has been in effect a little over a year and seems to be working satisfactorily, although the Committee believe that the physical examination should be more thorough than at present. During 1908 one hundred and eighty-eight children made application for such an examination, of which number one hundred and twenty-five passed the examination and secured certificates. Of the remainder, nineteen were refused because unable to pass the examination, thirty secured, during the ninety day period, documentary evidence on the basis of which certificates were granted in the regular way, and fourteen cases are now pending.

"To facilitate the securing of documentary evidence of age in October, 1907, an agent was placed at the Committee's expense in the Manhattan Borough Office, New York City (Board of Health), where certificates are issued. With facilities at her command, such as a card catalogue of steamers and steamship lines, detailed data from foreign Consuls in New York City, showing how to write abroad for birth certificates, and in countless other ways this agent has been of great value in helping the parents to secure satisfactory documentary evidence. As a source of information as to the actual enforcement of the law both by school officials and by officers issuing certificates, this agency has been of very great assistance to the Committee in its work. Summing up our experience in this matter of securing evidence of age for children, our Committee strongly feels that under no circumstances should affidavits of any kind be accepted; that school records as evidence are not reliable; that documentary evidence should be insisted upon, and that physical examinations and other such expedients should be used only as a last resort. That documentary evidence can be secured in the great majority of cases has been abundantly proved by the study of this question in New York City."

Important suggestions were made on these topics by State Senator James R. McDowell, of Mississippi, who especially discussed the beneficial re-

sults in that state from the new law requiring certificate of age and refusing to exempt orphans and the children of dependent parents from the operation of the law.

DR. SAMUEL McCUNE LINDSAY, Vice-Chairman of the Committee, who discussed the importance of having legislative bills carefully drawn, said: "I do not think that up to the present time we have been sufficiently careful in the language of our statutes and in the work that we put upon the actual technical framing of the laws. We can avoid a great deal of the necessity for further legislation with a little more care at the right time, not only in determining what things we want in a law, but also in thinking how those wishes are to be expressed and made effective.

"A very distinguished writer, once giving advice to a company of young authors, said: 'The number of times a book will be read depends upon the number of times it has been written;' it is likewise true of a statute, that its effectiveness in operation will depend upon the number of times it was written before it was enacted.

"Some of you may know that in the British Parliament where there has been a longer period of experimentation in legislation than in any other legislative body and in which we are more or less interested, there is now a legislative drafting department made up of experts, to whom every bill is sent. No member of the British Parliament, and many distinguished and able lawyers are members of the British Parliament, would think of such a thing under present conditions in England as writing a bill. A member may formulate in a definite way in the form of a brief what he wishes to accomplish in a proposed measure, but he sends it to this drafting department made of men trained for years, and they put it in legal phraseology, with reference to what the existing law is, and to the changes it requires. The drafting expert brings in the text of a bill with comments and memoranda accompanying that text, and a very great deal of labor is saved to members of Parliament in their discussion of a bill, and many legal controversies are avoided after a statute has been enacted.

"We have made a very small beginning in a similar way in two or three of our states, where we have, as in New York and Wisconsin, a legislative reference library and librarian, but in no case in this country have those departments of our state service done just exactly what is being done in England in the way of legislative drafting. They help in getting information for legislators, but they cannot do much in the way of formulating legislation.

"In the report from Kentucky, we heard, yesterday, that the Kentucky law is a very excellent law. We heard, in the report of Miss Ingram, this afternoon, of the changes that were recently effected in that law. I notice that in the Kentucky statute as read, it is possible now, under this law for a child to go into a factory as a helper, because the word 'employed' is used instead of following the language which has been carefully worked out in the standard child labor law prepared by the Consumers' League and published by our National Committee. It is especially valuable as a standard,

not in the fact that all of the facts necessary to be covered in every state can be put into a standard law, but in the phraseology of the general features of all good child labor laws. It is not without previous thought, a great deal of previous thought, that these words are suggested. Where a prohibition of child employment is to be enacted, we should say 'No child, etc., shall be employed, permitted or suffered to work in or in connection with any factory except,' then put in the extent to which you propose the law to go. Now, that will prevent an evil that will undoubtedly arise in time, of children allowed to work in a factory, but not technically employed or on the pay roll.

"A stricter phraseology will usually meet with no opposition, probably in Kentucky there would not have been the slightest opposition to the addition to these words in the act had it been thought of at the time. I believe that we should deal very practically and plainly with such questions in these state Committee conferences. We ought not merely to discuss whether we want the age limit increased, whether we want factory inspection, whether we want this, that or the other thing that we feel would improve the condition of our child labor legislation, but we ought to confer together through the office of the National Committee and send the actual draft of these provisions for discussion, so that we may bring the experience of the older Committees or those who have had longer experience in such legislation to bear upon the situation in places where this legislation is needed, and thus anticipate a good many of our difficulties.

"My point is simply this, that a little greater care in the formulation and framing of such amendments to our laws which we shall from time to time ask the legislature to enact will probably be productive of good results and save us a great deal of trouble in the future and also save us from the necessity of asking for additional amendments."

MISS GORDON: "I would like to suggest that Louisiana has been a little doubtful about having so many exceptions. The district attorney drew up the original bill and then the minute it was attacked went into court and declared every section in it unconstitutional, so we will be a little bit wary in the future in drawing up our bills.

"But I would suggest that Kentucky and South Carolina could overcome that question of the children coming under the head of not being employed by putting in the section that the Louisiana law has, that the presence of any child around a mill or factory, except during meal hours, so that they can bring in meals to the parent or sister or brother working there, is *prima facie* evidence of his employment in that mill."

MR. LINDSAY: "That is a very good suggestion. I think that it might be well to say again that the practical thought I had in mind was this, that if in every case where legislation is contemplated or desired, a draft of what you intend to frame was sent to the secretary of the National Committee, with a request that it be sent around to be scrutinized and suggestions offered concerning it, I think it would be a little better and would enable us to embody such provisions as the one which has just been mentioned.

"Of course you cannot always rely upon lawyers. They are generally

very good men, but they will make mistakes, like a lot of other men. I recall one instance of a bill that I was particularly interested in myself and spent a great deal of time in drawing. It was submitted to three of the ablest constitutional lawyers in the state where that bill was to be introduced, all of them disinterested men, and I have not the slightest suspicion to this day that any one of those three men had the slightest desire to nullify the act. Each of the three said unqualifiedly that the bill would stand the constitutional test in that state. It was passed, and within six months, the superior court of the state declared the law unconstitutional and its decision was affirmed afterwards by the supreme court of the state."

Others who took part in this discussion were Miss Frances Ingram, of Kentucky; Mrs. M. J. Barnard, of Minnesota; Mr. John J. Ryder, of Nebraska; Factory Inspector Edgar T. Davies, Mr. Edward W. Frost, Miss Jane Addams, Mrs. H. M. Van Der Vaart, Mrs. Florence Kelley and others.

Miss Ingram explained that Kentucky has the provision suggested and that the local committee was aided in drafting the law by the General Secretary of the National Committee.

Mr. Ryder objected to the amount of time consumed in the reading of papers and urged upon the Committee the importance of devoting a larger portion of the sessions to an open discussion from the floor.

Fourth Session.

At the fourth session, devoted to the subject, "Child Labor a Menace to the National Health," Dr. Frank Billings, of Chicago, presided. The papers by Dr. Woods Hutchinson, Dr. Albert H. Freiberg and Dr. James A. Britton appear in other parts of this volume.

Marked interest was shown in a paper by Dr. Thomas Morgan Rotch, of Cambridge, Mass., on "The Roentgen Ray as a Factor in Child Labor Reform." Dr. Rotch suggested the substitution for the chronological test of a physiological age based by means of the Roentgen Ray. He produced a number of charts, showing various stages in the physical development of the child and explained the tentative nature of his suggestion by the fact that investigation has only begun. His charts, showing the development of the wrist bones as affording a possible index of general physical development, led many members of the Committee to express the hope that this investigation, carried far enough, might offer a basis for conclusions leading to a more scientific classification of the physical fitness of children for the forms of employment in which they seek to engage. In discussing this address, Dr. Abt, of Chicago, said: "If this plan of undertaking to indicate the physical development of the child shall be developed into a system that is perfectly reliable and easily managed, as I hope and think it will be, I think that we will have a system by which we may have the proper indication of the development of the individual child. Dr. Rotch is doing a great work. It is necessarily pioneer work, and none of us are yet able to pass judgment upon it. But I predict for it a great and brilliant future."

The Chairman, DR. FRANK BILLINGS: "I was requested by the Secretary

to say a word to you this afternoon. I hesitated, but finally consented. Finally I was asked if I would act as Chairman, and as Chairman, make such remarks as I desired. Inasmuch as I have had considerable to do with the public affairs of the city, county and state within the last few years in reference especially to the care of dependents who suffer mentally and physically, I may be able to say something of practical interest to you.

"In the state institutions of Illinois to-day, there are about 17,000 inmates, and 11,000 of these are insane. Fifteen hundred of them are in the Institution for the Feeble Minded at Lincoln. The remainder of them come under general charities. In the almshouses of the state, outside of Cook County, there are about 700 dependents, and in Cook County about 2500; so that there are in round numbers about 20,000 dependents in the state. The cause of insanity and the causes of feeble mindedness have direct relation to delinquency in childhood, to child labor and to the laws which permit of marriage between individuals who are degenerates, often insane or feeble minded. While the question is far-reaching when we come to discuss it from the side of the cause, still it does bear a certain relation to juvenile delinquency and to child labor.

"It is unfortunate that neither the National Government nor many of the state governments have taken any definite and controlling action in reference to child delinquency and child labor. In our own, big, rich city, it was not until within the last few years that a Juvenile Court was established. Even with its establishment, there was no attempt made by those in authority to look into the physical or mental condition of the children brought to the court, and finally it devolved upon individuals and private corporations to take the matter up.

"The excellent paper you have heard this afternoon from Dr. Britton has been made possible by the work of the Children's Hospital Society, of Chicago, which has taken care of all the expenses of the Juvenile Court in relation to the care of the sick. Not only has it tended to the sick, but it has watched and cared for the children after leaving the hospital, and in many instances has furnished medicine, spectacles and other helps to those unable to obtain this sort of assistance from the county government. The county now sees the importance of the work and from this time on the expense of the care of these children who are usually physically sick and often suffer from some mental impairment, will be borne by the county.

"What Dr. Hutchinson says of the farm is true, and yet I think he over-drew the picture. I wonder if any of you have any idea of the number of agriculturists in America. Do you know that out of fifteen millions of votes cast in the last presidential election, about nine millions were cast by agriculturists? Do you know, therefore, that with five or six children in the family, how many there are of the children of the agriculturists? You see the number is enormous.

"I was brought up on a farm, too. I imagine Dr. Hutchinson was also, from what he said. I also taught school in the country, so that this gave me a wider acquaintance with the condition of children in the country.

There are many hardships and privations on the farm. There are cold winter mornings when the boy must get out of a warm bed, but it is a good warm bed, and he may be obliged to light the fire in the kitchen before he attends to the stock in the barn; and his fingers and his toes are chilled, and often frosted, as he performs his chores; but he returns to a warm kitchen and a plentiful breakfast. At the district school he is taught the simple rudiments of the three R's until he has mastered the simple books afforded him.

"Renan has said of the people of France that the scientists and the great men come from the peasantry. A common expression in our own country is that great and rich men pass from shirt sleeves to shirt sleeves in three generations. We may ask them why the country boy makes a good man. Because he may see the sky in the day with the sun passing from horizon to horizon. He may see the moon and the stars. He may see nature in the grass, in the trees and in the birds. He does not see them as an artist at the time, or he does not know that he sees them at all. But this sort of thing soaks into him. He cannot help it. And in spite of himself he is a good man, because he has communed with nature and has been down to Mother Earth. Why does this boy often develop when removed from such surroundings? Because the brain lies fallow.

"Now as to the work on the farm and its effect upon the child. Work does not hurt him because he does not work hard. He cannot, for he does not know how to work. It is true that his body grows physically tired; but he has good air, much sunshine and the food, while perhaps not well prepared, is given to him in plentiful amount and furnishes the proper nourishment for his growing tissues. You do not have to beg a boy or girl in the country to eat. The life they lead makes them hungry and hence they grow strong, sound bodies. In such a body there is a mind which may be developed. Those who have minds to observe, go to the city. If more of them went to the city, it would be better for all concerned.

"The city child needs just the environment of the country. There is a place for all of them on the farm. If, instead of erecting schools for them for manual labor in the city, they could be sent to the country and upon farms, I believe it would be the place for them. If their school opportunities were less there, so much the better in most instances. If the majority of them are well grounded in the three R's, they would be better off than with a smattering of a greater number of things and with an inability to write, read or use the elements of arithmetic. From what I have said you would infer, and I mean it should be so, that the farm is a good place on which a boy may grow up and it is also a good place for him to leave at a later date."

DR. HENRY BAIRD FAVILL, of Chicago: "From my point of view this program to-day is the sounding of a note of hope in the situation for the future, not so much because of its specific bearing upon the child problem, as because of the fact that it brings into proper relationship to all these questions the medical profession. It calls upon the medical profession to depart from its time honored and traditional duty of caring for those dis-

eased and to bring its contributions to the vast question of social improvement. The profession has in certain directions superior knowledge which should be expended, not upon what some call the narrow problems of sickness, but upon the constructive problems of health. For that reason I feel that not only is the community to be congratulated at the participation and contribution of the medical profession, but that the medical profession itself is to be congratulated at these evidences of inroads upon its traditional conservatism and its assumption of the moral obligation on the part of the individuals of the profession to contribute to every extent possible to these public problems.

"The question is one which appeals to us very strongly and oftentimes sentimentally, this question of the work of children. I am not going into any discussion now of the propriety or impropriety of child labor. That has been discussed and the situation is generally clear on that. Yet we are liable to drop into some misconceptions as to what we mean by child work and child play, and upon that score one could talk indefinitely. Assuming that child work, in the sense in which we are now using that term, is pernicious; what have we to say about child play as contra-distinguished from child work? Is it so beneficent; is it all good; is it the thing by which the child reaches its own best estate, whatever its possibilities may be?

"Now, that depends altogether upon circumstances. For children in the normal life of children in the country, in the small towns, in the town with open spaces, in the community with a simple life and simple conditions, the more or less primitive community of society, the play of the children is normal and to that extent is satisfactory. But the minute you come to consider urban conditions, you have to consider conditions abnormal to an inexpressible degree, and I am not so much disposed to draw the line in favor of the well-to-do as against the poor in this comparison.

"What happens to the poor child who is not allowed to work, who goes to school for a few hours of the day and then goes home to its more or less unhealthful habitation? What happens to that child for the rest of the day? Where does it play, how does it play, and what are the conditions of its play which tend to bring that thing which we are trying to bring to it when we shut it off from labor? I need not say to you, you know it perfectly well, there is nothing but emptiness for that child. It plays, to be sure, but what does it amount to? It must depend upon circumstances. But what worse off is that child, may I ask, than the child of the wealthy, in early years walking up and down the boulevard with a nurse and afterwards idling around in some sort of indifferent endeavor before he goes away to school? What does either of those children know of the matter that we are now talking about, the normal, healthy, joyous activities of children?

"Do you not see that at both extremes of this proposition we are missing the point? Therefore, we have to consider that there is a supplemental need, and this is the situation to put it in a nutshell: For every child we turn out of the workshop and every child we turn out of the school for many hours of freedom, we must provide suitable, we will say, playgrounds.

"There is the very crux of this proposition. We cannot conduct operations

of this kind one-sidedly and reach anywhere. We cannot, for example, put into effect child labor restriction laws without compulsory education laws, and we cannot put into effect child freedom laws without child amusement laws. Therefore, I think we may say that there is something more to consider in the question of child development than mere child freedom. That is the thing that I have in mind at this point.

"What do we mean by child development? What do we mean by the growth of a healthy body and presumably, under that condition, a healthy mind. Our whole notion on this subject of what is a healthy body is distorted. We are too apt to talk about a healthy body as though it was a question of a healthy anatomical body. The point of our mental system, as we Americans look for it to-day, is a great, big, overgrown and distorted product, and that is college athletics.

"What do I mean by that? That sounds radical and as though I had some sort of a grudge against college athletics. Not at all. Perfectly willing am I that college athletics should develop along the proper lines; that they should incorporate into their grossly distorted form of development all those individuals who are fit for it, who could stand the dangers involved in it. But I am now talking about the vast mass of boys, the mass of students who get no development at all; whose contribution to college athletics consists in a capacity to root in unison. Am I not right about that? Is not the whole mass of students engaged in holding up and applauding and backing in one way or another the few who have been able to stand the test and make good?

"The statement as to college athletics may be a little overstated. I will admit it is not quite a fair statement, but after all, it makes my point. What are we doing for the mass of students, the hundreds of students untrained, but interested in the ten students that can amount to anything in athletics? What are we doing with those thousand students? I want to say that I do not think there is one—well, there may be one per cent.—there is not five per cent. of the students of a college who could not be materially improved in physique and consequently in health by a development of physical powers under intelligent methods.

"All colleges have gymnasiums, some of them have more or less compulsory gymnastics, but I assure you gymnastics are not looked upon as a thing of real development in any college or school, and the consequence is that we have the mass undeveloped physically, and you would find it very strongly so if you should carefully examine into it. That serves only to make this point that I want to make, that we must bring up our children, if we are going to bring them up healthy, we must bring them up with the facilities for development, not of muscle, which is the coarsest kind of development, but of nimbleness, of activity, of respiration, quickness and accuracy, and all the things that go to make up the idea of the gymnastic ideal as against the athletic ideal.

"That is the crux of this whole developmental question and it is just the same for adults as it is for children, but the opportunities for results in children are incomparably greater than in adults. Therefore, I am going to

simply leave that proposition as I make it and say that we have got to push our lines of child culture and child succor together, and bring to bear upon the child proposition the developmental proposition of intelligence upon all the lines in order to make the freedom which we are trying to secure for children effective and productive.

"I do not know that I shall be called upon to speak again to-day, and I also hope not for your sake, and therefore I am going to make no allusions to the things that I have wanted to say in regard to Doctor Rotch's contribution, which will be very superior and impressive, but the point that I want to add is to say simply this one word: We all believe that the co-operation and co-ordination of the forces working to the same end and through various channels is absolutely necessary in order to get results. Things will concentrate at a focus or they will dissipate into thin air according to the co-ordination and concentration of machinery.

After thinking it all over, after arguing the question in all its bearings, the people who know most about this—and this does not include myself, for I do not know much about it, but the people that do know most about it, have concluded that a bureau of child study, of child interest, of child investigation or child development, whatever you choose to call it, as a central federal matter, having its influence—I won't say its authority—having its influence over the whole country—is the only rational procedure upon which the hope of any real progress in this direction rests."

Fifth Session.

At the fifth session, held in Orchestra Hall, Mr. Isaac N. Seligman, presided, and papers were presented by Hon. Andrew S. Draper, Mr. Howell Cheney, Mrs. Florence Kelley and Dr. Albert H. Freiberg. These papers appear under their titles in this volume.

Sixth Session.

The sixth session, held in the Banquet Room of the Auditorium Hotel, was devoted to a discussion of the problems of factory inspection. Mr. Everett W. Lord presided, and papers were read by Hon. Edgar T. Davies, of Illinois; Hon. John Williams, of New York; Miss Jean M. Gordon, of Louisiana, and Mr. Edwin W. De Leon, of New York. These papers, which are reprinted in full in this volume, were followed by discussions in which many of the specific problems of factory inspection were considered. Added to the exhibit of the work of the National Child Labor Committee, there was displayed, at this session, an exhibit of the charts and office file system of the Illinois Department of Factory Inspection.

Sixth Session—Second Section.

Because of the limited time and the great interest expressed by many delegates in a discussion of the problems of street trading, a special section on Saturday morning was devoted to this discussion. Mr. Edward W. Frost, of Milwaukee, presided, opening the meeting with the following remarks:

"In Wisconsin we have no street trades act. We have in our child labor

law an exemption of newsboys at certain hours, but without prescribing any educational or other requirements, and permitting them to sell papers. By a sort of tacit action the newsboys have never been considered regularly under the child labor law. But this exemption is one of those things every one of us dislikes and there is always danger in an exemption of an attack in the courts on the ground of special legislation. Therefore it is our feeling that we should take the newsboy clause from the child labor act, and in its place have a newsboys' and street trades' act.

"In Milwaukee we have the newsboys, boys who distribute handbills, and bootblacks who, save as the Juvenile Court or the compulsory education people follow them up, are not touched by legislation. We want, if possible, to find a way to regulate all this street trade for boys.

"In the National Consumers' League Handbook there is a model street trades law, and I suppose the discussion might properly take this form. What state, represented here, has a good street trades act which is working well, or what state is represented in which there is about to be introduced a good streets trades act, and what is the general outlook for it?

"Mr. Hall represents a state with a good street trades law, and I suggest that he tell us about it."

MR. GEORGE A. HALL, Secretary of the New York Child Labor Committee: "Our street trades law applies only to the sale of newspapers, periodicals and magazines in cities of the first and second class. It does not apply to boys who may be peddlers, distribute handbills, or handle other articles referred to. In fact, only a year ago the 'magazine and periodical' clause was inserted in order to include boys selling the *Saturday Evening Post*.

"In the first attempt in 1903, the enforcement of this act was placed with the police authorities in each locality. It was soon found that such a provision was absolutely futile. Not only were they not interested in it, but they could not be made to see its importance, or to do anything about it. After a strenuous effort, a small squad of four men in plain clothes was secured to go about and do a little enforcement, but even they found on an average only two boys a day who were violating the law in the big city of New York, although our Secretary found thirty in one afternoon. In 1907, the law was amended, and its enforcement put in the school authorities' hands, in addition to the police. The school people asked that the enforcement should not be taken entirely from the police, because they might want to call on them for aid. The present system of enforcement in our state is therefore by the police and the attendance officers. It has not progressed greatly, so far as adequate enforcement is concerned. I think in only three of the nine cities in which the law applies, has there been any serious attempt to enforce it. In New York, Rochester and Troy, some fair efforts have been made in this direction, largely through the efforts of the Committees and other interested people who believe in the law.

"In New York City our Committee secured and exhibited twenty-five large pictures which showed the non-enforcement of the law—young boys selling at three o'clock in the morning, for example. This aroused the officials to action and something was accomplished.

"But first, in order to get the situation cleaned up, the superintendent of schools assigned fifty of the seventy-five attendance officers to that one task during two weeks of the school term beginning last September. The men were divided in day and night squads and covered the entire five boroughs of the city. The public had a right to expect them to accomplish something; they would be a pretty poor lot of men if they did not do something with so large a number. They did clean up the situation by explaining to the boys that they must have badges, telling them where to get them, so that after two weeks' work by those fifty men, one began to see badges blossoming out nearly all over the city. But that was not enough.

"An effort was then made to secure the co-operation of the school authorities to make this work permanent. As a result, they now have a squad of four men giving their entire time to it. They go on at three in the afternoon and work until eleven, being on duty during the busiest time of newspaper selling. They move about to different centers and try to cover the different boroughs in the course of the week. There has been considerable improvement since they began, though not all we would like to see.

"In Rochester there has also been a serious attempt to enforce the law. That is again through the personal efforts of the women and others interested in the subject. By going to the President of the Board of Education and the other school officials, they have brought home the importance of the subject and have gotten them to take up the subject seriously, with the result that badges are being pretty generally worn in Rochester and also in Troy.

"The following are, in my judgment, the weak points in the New York law: The minimum age of ten is absolutely bad; it should be at least twelve. Our Committee stands for the twelve-year age limit. The night-closing regulation is another bad feature. I can see no reason why boys should be permitted to work on the street until ten o'clock when the law requires boys in stores to stop at seven and in factories at five. We urge at least an eight or nine o'clock closing hour.

"The penalty clause is perhaps the weakest feature in the law. It was drawn in conference with some of the judges of the Special Sessions Court in our city, but it has proved ineffective. It provides that for violation, the boy may be arrested and brought to the Children's Court and dealt with according to law—whatever that may mean. It permits the court to commit the boy to an institution of the faith of its parents. Of course, we do not favor the commitment of a child who, for instance, leaves his badge at home. But some adequate penalty is greatly needed. We should like a penalty that would make it possible to fine the parents for the delinquency of the child. That cannot be done under the present New York law, because the statute does not contain a delinquency clause by which the parents can be reached, as in some other states. We are working toward that and hope to get such a provision in the law.

"In the distribution of handbills, I think our law would hold the employer under the provision regarding children working in mercantile and other establishments. By that law, children under sixteen shall not be employed, without a certificate, in the distribution or transmission of goods

or messages. However, I do not know of any attempt to reach them in that particular way.

"The law requires the boy to wear a badge in a conspicuous place, and here we find a great difficulty. The boys often claim, as a reason for concealing them, that the older boys snatch them away to 'put them out of business.' Sometimes we have to almost undress a boy to find where the badge is. Perhaps another real reason for concealing the badge is that the boys like to give a dime novel effect by suddenly flashing the badge from somewhere underneath. In order to aid in determining whether the proper badge is being worn, the color of the insert card is changed every year.

"Our law also fails to require proof of the age of newsboys. In New York, the parent merely signs an application blank showing approval, but it does not prove the boy's age. I believe a provision should be added requiring the same documentary evidence as is required for other forms of employment."

A delegate asked if the law applied to newsgirls, and Mr. Hall replied that "newsgirls are absolutely prohibited under sixteen," and also in Massachusetts.

As to the question of "contributing to the delinquency of children," the Chairman said: "I have grave doubts whether there could be a conviction for permitting children to sell newspapers. We have that law in Wisconsin, but it is not easy to enforce. We took the law largely from Denver, and have had several convictions under it, but they have to be pretty strong cases, as where little girls were permitted in hotels with men, or allowed in saloons under immoral conditions. I do not believe that, in ordinary cases, the court would enforce that delinquency law against a father if he permitted a child to sell papers up to ten o'clock at night. I think the Massachusetts plan is the one we ought to follow."

The issuance of badges was discussed, Mr. Hall explaining that in New York City there are twenty-six district superintendents who issue them. Mr. Frost explained the Massachusetts and New York laws and Mrs. E. J. Bissell, of Rochester, N. Y., said: "A good point in the Massachusetts law is that requiring the badge to be worn on the right arm. We have had considerable trouble and are now changing the badges, slipping a strap through and strapping it to the right arm." (The method employed in English cities.—Ed.)

Mrs. E. GAYLORD HOLT, Grand Rapids, Mich.: "We have no street trades law in Michigan, though we have tried hard to get something done. Mr. Lovejoy has advised that perhaps a city ordinance is better than a state law, because the state law would be hard to enforce. We have in Grand Rapids, an evening press association, which is doing a great deal for the newsboys, giving the Sunday afternoon pleasant hour and things of that sort, which are very helpful to the boys, and such work has given the idea that we do not need an ordinance in our city when the conditions are apparently so good. They are certainly doing much good to the boys, but we have as many as 250 boys under ten years old selling papers, and some not more than five or six years old.

"Last year we had a little boy of six years old killed by a street car at night, and we know of other bad things. There are a few little newsgirls, perhaps a dozen in the city, and some of them are down on Market street, a low part of the city, standing by saloon doors to sell their papers. I would like a little light on what we can do by a city ordinance or otherwise."

THE CHAIR: "It would be better to try to get a state law along the lines of the New York law, applying to cities of the first, second and third class. It is hard to pass such a law through a city council, and even if it were passed, it would be put in the hands of the local police. You can bring more pressure to bear in the legislature. Mr. Hall has suggested two or three changes in the New York law. We would probably agree as to age limits, the prohibition of young newsgirls and the limitation as to hours, but what shall be the penalty? Shall the child be punished, as in Massachusetts, or can a law be framed that will reach the parent, or the newspapers, or both?"

Mr. Hall was asked if the newspapers oppose the law in New York, and he replied that, when the bill was introduced there was a little opposition, but of no account, and that since the law is in force there is no opposition on their part. In New York, there is no way of reaching the newspaper that employs a boy contrary to law. It is held that the child is his own employer.

JULIUS F. WENGIERSKI, of Rockford, Ill.: "About two years ago, when I was probation officer here in the Juvenile Court, I especially looked up the night newspaper trade. A conference was sought with the newspaper men, but none of them came. We had hoped they would help us solve the problem. We thought that, with their help, we should not have much trouble with the boys at night. Of course, when they did not show up, it meant that we had to do the best we could. I stayed out at night and picked up boys and girls on the streets, found where they lived and sent them home. Then, through the co-operation of the relief and aid societies and partly through the co-operation of the Bureau of Charities, I got a full report of the home conditions of these children.

"This report was given me within a few days after I had picked up the child. At the time of my picking up a child, I would tell him that he was not to be out on the street alone at night. I had no law to back me, but the moral law and the real purpose in finding out the home condition was to find out whether these children were really dependent.

"Out of about seventy-five cases investigated, we found there were only two cases of dependency, and Mr. Kingsley, of the Relief and Aid Society, found work for one woman who needed help, and in another case where a boy who was employed had to help support the family, another position was secured, whereby he would not have to work on the streets at night.

"We went further. I tried to get Mr. Davies, the factory inspector, interested. I wrote him a letter. He forwarded that letter to the attorney general to get an opinion regarding the child labor law. Of course, the opinion was that a boy that was selling newspapers was not in the relation to the newspapers as an employee, but was really a merchant. He made a contract to purchase from the newspapers and he could sell these papers.

"We ascertained that some of these papers were being sold on commission. He said, notwithstanding that fact, they were still merchants, so we were handicapped all around. We could not do anything. We had no law to back us, with the exception of the Juvenile Court law, which is the same as in New York, and no children under ten years are allowed to peddle anything at any time. But the children between ten and sixteen we were after especially.

"But we did go in one case to the extreme. There were three little boys, ranging from eight to twelve, whom I picked up several times here in the loop district and sent them home every time. Upon an investigation of the home conditions, it was found that the father was working and was earning five dollars a day, and they owned the property they were living in, that these boys were earning on an average fifteen dollars a week peddling papers down town. We also had an investigation made of their school records and found they were truants. They were at school about five days of the month, and when there, they usually slept most of the day as they naturally would after being out until two or three in the morning. We arrested this father and had him tried by one of the municipal judges. Fortunately, the judge saw the case as we did and fined the man two hundred dollars for contributing to the delinquency of these boys; but he suspended the fine on condition that the father, in the future, would keep the boys off the streets. I never saw those boys on the street again.

"I wrote a complete report of this work and gave it to Judge Mack and also to Mr. Kingsley, and the result was that we now have in Chicago an officer of the police department especially delegated to this work between six and twelve. Those are his regular hours. Of course, all that he has to back him is that he is a police officer. He has no law, except the Juvenile Court law, which gives him the privilege of keeping children ten years old and under off the streets."

MRS. FLORENCE KELLEY: "Last night I saw a little girl peddle just around the corner from our meeting. In New York that would be a misdemeanor and the child would be taken up and the parents fined."

MR. WENGIERSKI: "In that case we would find the conditions at home and learn whether the child is a dependent or a delinquent, and charge the parents with contributing to the one or the other."

MRS. KELLEY: "But in New York, the doing of it is a misdemeanor. The peddling itself is a delinquency. We do not want peddlers under sixteen on the streets."

MISS McDOWELL, Chicago University Settlement: "I was astounded to find the other day that my newspaper comes to me, in the morning, because two little boys, one twelve and the other thirteen, get the paper at half-past two at night at the corner of 47th and Halsted streets. Those little boys, who go to school, carry papers around so that we get them in the morning at four o'clock, all the year around. They are working for a man with whom we contract for our newspapers, and I wish, in some way, we could get at that question.

"Then there is the question of the little girl selling newspapers. I was

quite shocked in St. Louis twice this fall to find a girl five or six years of age, selling newspapers just as I came up from the big station there; in the worst part of the town, after dark. There is a little girl between six and seven years of age selling papers every morning at ten o'clock in front of one of our great bank buildings right here on Monroe and Wabash streets, so it does seem as though we ought to get at this. We cannot touch the newspapers. We hear a great deal of sentimental talk about newsboys' societies doing so much for newsboys, but they do not seem to care anything for work of this kind."

MRS. E. J. BISSELL, Rochester, N. Y.: "Rochester is a city of 200,000, with 700 newsboys. We have this law in New York state, and up to a year ago, the board of education did not even know they were responsible for issuing the badges. We found perhaps one boy in thirty, in some cases one in fifty, with a badge. The Committee on Child Labor visited first the board of Education and had a serious talk. The board promised to co-operate with the police commissioner or to get his assistance.

"The policemen themselves had had a fee of twenty-five cents for issuing every badge, so they were disposed to give no help, and the only way even under our good law was through a mass meeting called for another purpose, a mass meeting of about 1200 women. The subject was brought up, the city was districted, each woman was asked to consider herself a member of a Vigilance Committee in her hours of shopping. Every woman whose business took her to the city at seven or eight o'clock in the morning was asked to co-operate and to follow out one little plan. The moment a boy was found, or two boys, in some cases there would be five before you would walk a hundred feet, that woman would get to the nearest telephone and say to the board of education and the police department, I found so many boys at such an hour at such a place.

"It took but five days to send in such a fire to both these departments that the school superintendent and then the president of the board of education called up the Chairman of this Committee and wanted to know what they could do in the matter, and arranged for a meeting.

"We had our meeting and called attention to the fact that badges should be issued, and they asked for two weeks in which to secure new badges and enforce the law, and of course, for two weeks we stopped telephoning.

"At the end of two weeks the badges came and the superintendent had, in the meantime, called up each principal. The principal was to send his boys desiring badges to the board of education. The truant officer came there, also the Chairman of the Child Labor Committee, and each child had an ordinary little card which had to be signed, and the badges were issued and the children were instructed to wear them. For possibly three or four weeks we saw a great many badges on the streets, and then the badges disappeared gradually. We felt we ought to begin our campaign over again. We found one little boy four times in ten days, a child of seven selling papers and pleading for money—he had 'lost twenty-five cents,' and, of course, he was obtaining money.

"We secured the help of the Society for the Prevention of Cruelty to Children, and we made this a test matter. As the outgrowth, the board of education appointed one truant officer, the commissioner of police appointed another policeman and he then districted the city, and those two men were required to report every child found. In the new campaign, they took away, in three days, fifty badges from boys. No badge was reissued until the parents, at least one parent, accompanied that child back to the office of the board of education. That had a very good effect on the child as well as on the parent. Many of the men became interested and to-day I think we have an unusual city.

"Just before I left I had a report from a business man, saying that he had one serious charge to make against the Child Labor Committee of Rochester. He said that where formerly anyone, at seven o'clock or six o'clock in the morning, could find any number of small boys selling papers; now he had to walk two blocks before he could get one at an early hour."

THE CHAIR: "To rectify such conditions as these, I understand that the New York and Massachusetts laws combined, seem to make the best basis for a law at this time. A state law, when limited to the larger cities as it is proper to do in most states, is probably better than to attempt to secure the passage of an ordinance by the common council of a city. First, the child must be directly proceeded against, however uncomfortable that may be to many of us in many cases, but the child labor laws do not reach the employer save when the direct relation of employer and employee can be established.

"A child labor law, or a law amending it, should provide strictly against the employment of children to sell newspapers, but the merchant newsboy, as has been said, is a factor that must be watched very carefully. He can only be reached, it would seem to me, through the Juvenile Court and the taking away of his badge. I personally greatly object to the fining of a little child. I am in favor of a penalty, if it could be drawn in legal and practical form, by which we could bring in the father and fine him. The statutes for contributing to delinquency are good, and in very strong cases might be effectual."

MISS JANE ADDAMS, Hull House: "I think about six years ago we made an investigation of a thousand newsboys within twenty-eight hours. We tried to do it in twenty-four hours, and at least eight hundred were taken in twenty-four hours, and two hundred more afterwards. The one thousand boys were very carefully questioned; we found exactly what made them leave school, the circumstances of their family, how much their earnings were needed, their truancy record and all the rest. It was considered, I think, a very good piece of work.

"The conclusion we reached was that there was no law practically designed to reach such a situation. A newsboy is a merchant and does not come within the child labor regulations. This matter was taken before the publishers' association here with the hope that with the example of the New York and Boston newspapers before them, we might be able to secure some

favorable action. But the publishers' association here put us off, I regret to state, and did not finally take any action in the matter at all. So far, we have been unable to secure any legislative action on the subject. It is a very disgraceful situation, I think, for Chicago to be placed in while the Illinois child labor law is so good. The City of Chicago is a little careless, if not recreant, towards the children who are not reached by the operation of the state law."

A DELEGATE: "Mr. Chairman, I was just wondering if it would be practical for this meeting to gather the main points of the law that we want to work for."

MRS. FLORENCE KELLEY: "I want to say a word as to the New York law. I think perhaps we are all saying, with reference to street trades, a great deal more than we need. It is all pure nonsense to say that a little newsboy who is selling papers is doing anything essentially different from a peddler who is selling chewing gum. We have in New York, under the penal code enforced by the Gerry Society, a provision that no girl under the age of sixteen can peddle anything on the street. A girl cannot sell violets, she cannot sell chewing gum or anything else; and the penalty for violation is a very stringent penalty and is very rigorously enforced. We do not know of such a thing as a girl under sixteen years of age peddling. There is no essential difference between selling information, selling papers and selling chewing gum. The trouble is we are afraid of the newspapers. We are not afraid of the chewing gum manufacturer and the other people who sell goods to the children to sell on the streets, but we are afraid of the newspapers, and so we have worked out a combination that a newsboy is a merchant, which is simply ridiculous. Is a newspaper merchant different from a chewing gum merchant? He is not. He is just a little boy under sixteen years old.

"The largest city in this country has stopped absolutely peddling on its streets for girls under sixteen. It has enforced it as to girls. It is enforced almost absolutely with regard to peddling other things by boys, but there was a little winking at it during the panic. There were a few children peddling things around at that time.

"There is no excuse whatever for our keeping up this fiction as to 'merchants' any longer; let us tell the truth. Let us say that we know that we can stop girls from selling anything until they are sixteen years old. We know that we can stop boys from selling all other things, and how absurd it is to say that we cannot stop them from selling newspapers! There is a very large body of convalescent tuberculosis patients who would be glad to enter the field in that work of selling papers if they did not have the odious competition of these little boys. There is a large number of one-legged and one-armed men in New York who do now have stands. Sometimes three or four or five of them together, of whom I know, can be found at different times at the corner of Twenty-third street and Fourth avenue selling papers. If we could prevent children under sixteen years of age from selling papers as we keep them from selling other things, it would

be a perfect Godsend to those handicapped men, and the men who, lacking an arm or a leg, can perfectly well tend a stand.

"Any suggestion that we make as to what ought to be done about newsboys I think should carry with it a very urgent request that from now on the juvenile courts make an effort to card their records. There is not a Juvenile Court in this country which has any adequate record whatever of the previous occupation of the children who come before it. I know whereof I speak, because I have met a majority of the judges and the probation officers. If we could get trustworthy information as to the previous life of the children who come into the Juvenile Court, I do not think it would take us three years after we had such records printed until we had brought about a marked improvement in the employment of children."

MISS McDOWELL: "I would like to explain that we do not make any difference between the peddlers of newspapers and of chewing gum in Chicago. We make no difference between the chewing gum merchant and the newspaper merchant. We have no such provision in our law as you have in New York. We gave the matter up, not because we were afraid of the newspapers, but because we could not proceed without the help of the newspapers."

As to the proper age limit for street trading, there was a difference of opinion. It was agreed that no girls under sixteen years should be allowed to peddle anything on the streets. The age for boys, Mr. Hall believed, should be twelve years instead of ten. Mrs. Kelley urged that it should be sixteen. She said: "When you get your Juvenile Court records, you will find it just as bad for boys as it is for girls."

It was agreed that a careful educational test should be required, thus making it possible to determine more accurately the effects of street trading upon the school record of the children.

The question of penalties proved a difficult one. Mr. Hall severely criticised the New York law which is preposterous in its penalty clause. To the question why the newspapers cannot be held responsible, the Chair said: "You must remember that we are compelled to work along certain legal lines. You must establish the relation between the newspaper and the boy selling papers, and in most cases you cannot do that. You can forbid the boy from doing something which your law defines, but you cannot touch the newspaper unless you can show the connection."

Mrs. Kelley suggested that the father of the child should be brought into court and dealt with under a quasi-criminal statute.

MRS. BISSELL: "Someone has suggested that they fine the parent a dollar. In Manchester, England, where I looked this matter up last spring, I found that they often have to fine the parent a dollar. That is the minimum fine, the maximum being five. They found it worked a very great effect. They also prohibit selling papers within a mile of the city center."

E. N. CLOPPER, Cincinnati: "In discussing street trades, we ought not to confine ourselves too strictly to newsboys, for there are so many other kinds of street trades that I think they ought to be considered. There are many children who are employed in the markets of our large cities and they

work just as hard as the newsboys and are exposed to just the same influences. There are boys employed by the postmasters of the cities to deliver special delivery letters, who work until ten o'clock at night, and they do not have any time except some ten minutes for lunch between three o'clock in the afternoon and ten o'clock at night. It may be that the postmaster even is violating the child labor law in getting those boys. There are so many children in America, particularly children of foreign parents, who are selling a great variety of different things that any measure adopted along this line should include the means of getting at those children also."

Seventh Session.

The seventh and closing session of the conference was held in the banquet hall of the Auditorium Hotel on Saturday afternoon. Mr. Lovejoy, General Secretary of the National Child Labor Committee, presided. Papers were presented by Mr. William E. Harmon, of New York; Hon. James R. McDowell, of Mississippi, and Mr. Charles W. McGinnis, of Wheeling, W. Va. The papers of Mr. Harmon and Senator McDowell appear in other parts of this volume. Mr. McGinnis, in discussing from his practical experience, "Children in Dangerous Occupations," said:

"I remember my first day at work. I was ten years old. I cried all day, wondering why I should be taken out of school and put to work. I had the best mother one could desire. I was not old enough to understand the conditions that made my mother and other poor mothers send their little boys to factories and mills, too young to guard against injury from the cruel machinery.

"While I worked during the first year, I one day heard the scream of a boy who had been a schoolmate of mine, but was now also working in the factory. Looking toward him I saw one of the cruel tack-making machines' gear wheels chewing the skin and flesh off his chest. I ran toward him, keeping my eyes on him the while. The gear wheels were now twisting him around, now chewing the flesh and skin off his arm, and by the time I reached him had reached his back. He lay in bed for six months trying to regain what he had lost. As long as I knew him afterwards, he was never strong.

"One day I almost lost some of my fingers in the same kind of gear wheels. I was cleaning my machine with a piece of waste. The gear wheels caught the waste and snatched it from my hand. I should have been dragged into the wheels had I tried to hold it. But some unseen power seemed to save me.

"No matter how many times a boy has a close escape from injury, he soon forgets about it and becomes careless again. His mind is not mature enough to comprehend the dangers that surround him. Just as a child in the light of day has no regard for the fear that comes to him at night in the dark, the boy in the factory, at work at his machine, gives no thought to the possible injury that will follow his play or inattention. I have had persons working for me who were hurt three times, and I have known of others who were hurt four or five times.

"Another little boy working in the factory with me—he was about eleven or twelve years old—started to clean his machine before the time appointed. He was not old enough to realize why rules required that no cleaning be done while the machinery was in motion. The waste caught in the gear wheels, and his index finger was crushed off close to his hand. I could mention from one to two hundred other accidents, mostly through carelessness on the part of those not old enough to comprehend the rules of factories and mills. In Milwaukee I saw a little boy lose three fingers at the second joint of his right hand. He was about twelve or thirteen years old and worked in a mill. It was his duty to stand at the back of a press and sort the elbow blanks cut from the small sheet of iron fed into the press by an older boy standing in front of it. A piece of iron was not released in the usual way, and without stopping to realize the danger, the boy put his hand under the die, to extract it. The larger boy continued in his work at the other side, not knowing of the other's attempt to dislodge the iron. He put the press through its regular operation—and with the next 'elbow' there were cut off three fingers of the little hand.

"A girl who is now working in our factory worked previously in a glass factory in West Virginia, and had the ends of two fingers cut off when she was twelve years old. She relates that one day she put her arm under one of the big dies, while she had her foot on the treddle, just to 'show off' to another girl. I have seen young boys trying to see how close they could hold their fingers to the die without having them cut off. Older boys never think of taking such risks.

"I do not believe it pays to hire children. My records show that I can get a better output, with less percentage of bad work, from employees over sixteen. Under that age, they require close supervision both in attentiveness to duty as well as in the kind of work produced. This means the loss of the foreman's time and temper, the output of the machine is reduced, orders are delayed, and the work of other employees is held back. I have been foreman in five different factories. When I took charge there were always better results than before I came. There was quicker work done and there was a smaller percentage of bad work—for I did not hire children to do the work.

"There are exceptions. Some boys are so strong physically, so full of life, they rush right into danger, in their heedlessness. Where a boy is alert and not strong physically, he sometimes comes to harm in dangerous work where physical strength might save him. So you see, the boy with fair chance is he who is strong both physically and mentally. Only a small percentage of boys are fortunate enough to have both qualities. The large percentage, failing in one or the other, is in need of protection.

"At the Wheeling Stamping Company, I have instructions to keep the wages of employees at a high standard. In our press department we have a system of piece work by which each employee—whether girl or boy or woman or man—earns the same wage per piece. All have the same chance—it is not the case of having a boy do a man's work at a boy's price."

These papers were followed by a general discussion on various topics

of interest relating to the conference. The Chairman said: "I regret, in the deliberations of the Chicago meeting, that our program has been so exceedingly full with the excellent papers, that we have had altogether too little time for a floor discussion of the various problems presented. People have come from all parts of the country with reports from their state committees covering a wide range of topics and many phases of experience. We ought to have had all of them read and each one discussed. Those who have had no opportunity to read their reports are requested to send them at an early date for publication in the proceedings of this meeting."

Under the two-minute rule, the Chair then gave an opportunity for general discussion. Mr. Frost was requested to refer again to the subject of vacation permits, previously discussed.

MR. GEBSON, of Omaha: "We grant certificates under a ruling of our county attorney and we are able to call back the certificate at any time. When school convenes, we take back the certificates and send the children back to school. It is done under the regular certificate plan, except we can call them back at any time."

MISS TODD, Factory Inspection Department, Illinois: "I think that after all is done and said, there is an increment of the people who are doing the work, the people who are going through the factories and inspecting them, who get impressions that are infinitely valuable, and we ought to get from them the contribution of their impressions because they are the people who know certain things that nobody else knows. They ought to get up and state those things as nobody else can state them.

"What I wish to say is this: From an experience of two years in Illinois, it is apparent to me that we must have some humanizing social influence to go with our work. For instance, we go into a factory and find that a child is working ten hours a day in violation of the law, as the child is fifteen and can only work eight hours. The employer is brought into court and that child is thrown out of work and we never know what becomes of the child or its family. A few months ago I found a child that had been thrown out of work where it was getting six dollars a week, and I found that child working at home sewing; it was the only support of the family and I had put the child out of this position.

"In our work we see constantly the greatest misery and suffering and we simply go on like a snow plow and enforce the law. Those children come from parents either very poor or very ignorant, they go out of the school at fourteen and the teachers do not know anything about them. They come from the worst and most poverty stricken homes, and there is no social influence whatever for them. Therefore, I feel that the work of factory inspection in Illinois should be supplemented by a Committee on child labor; to which we, when we see these heart-breaking instances of wretchedness, sickness and poverty and misery, can give information so that the cases will be followed up and the human element will enter into the factory inspection. We can not do it; it is not our business to do it. If you people could see what we factory inspectors see as we go through the factories, you would realize how absolutely necessary it is to bring the social humanizing element

into the lives of these children. The settlements do not get them, the schools do not know anything about them, they are simply segregated in wretched homes and in these great factories that exploit them for their profits. The parents are poor and can do nothing for them and we can do nothing for them.

"We must enforce the law, but we must also have this humanizing element, and I am convinced that we must supplement our work by something on the humane and social element side."

MRS. FLORENCE KELLEY: "I want to speak a word on that subject because Miss Todd has now, after fifteen years, expressed the same old need that we felt in the first month after we went to work as inspectors in Illinois, and felt increasingly every month that we worked throughout the four years of our term; and which we feel in New York now with every improvement in the law and in its enforcement. The better the law and the better the enforcement and the longer the children are kept out of work, and the longer they are kept in school, the greater the need not only of scholarships to eke out what the child would have earned, but the greater the need of another entirely different function also to be performed by a child labor committee.

"Many children between fourteen and sixteen years old, who need scholarships because they have not finished their school work, need that help and have failed in that work because the community in which they live slipped the first stitch when the children failed to make their first promotion away down in the first grade of the public school. Who are the children who need scholarships? Who are the children who come into the juvenile court as all sorts of delinquents between the ages of ten and sixteen years? They are very largely the discouraged school children, the children who are older than their class, taller than their class, ashamed to be in the class to which they have to be sent back when they fail of promotion. They are the children, perhaps, who were sent out of school by the school doctor, quarantined because there was scarlet fever or something else at home; who thus lost their first promotion and stayed two years in the first grade and fell behind and were ashamed and again spent two years in the second grade. Thus we have a mass of children, who, when they ought to be in the eighth grade are in the fifth, fourth or third. A large part of the children who are not equipped to go to work when the law allows them to work, are these who needed just a little watching and help and pushing forward at the beginning of the story.

"We never shall deal wisely with our working children until we follow up those who get belated early in their school life, those who are so cruelly on the street at work when they ought to be in the early grades of school. There is not an honest factory inspector or an honest truant officer in this country who does not feel this need, and there are sadly few really patiently-working committees backing up the factory inspectors and the truant officers with this much-needed work.

"While I am saying the better the law and the better the enforcement, the greater the need of this auxiliary work with the school children in the

earliest grades, I want to put in a word on behalf of the children for whom here in Chicago, the second city of this Republic, there is no effective protection. On the way to our meeting last night I saw on the street a most miserable little chewing gum peddler. I do not think he was twelve years old. I am told there is no law which could banish him from the streets. He could not have worked in a factory so late; he could not have worked in a store so late. But there he was out in the rain in Van Buren Street in a part of this city which is not salubrious for little boys at night; there he was working, and it was nobody's business so far as I could learn to look after him.

"Why do we shirk the street children? Why don't we give exactly the same protection to children in the street trades that we give to those in the factory trades and the stores, and to the messenger boys? Surely the requirements ought to be made the same for employment in all occupations. There are no other occupations so bad for the children as the street trades, including the messenger service. As I understand it, Illinois does give the messenger boys now the same care that it gives to the cash children and the factory children. But we keep up a queer fiction that a child who sells things on the street differs in some way from the child who works where things are sold in a store. Let us clear our minds up about that, make it plain to ourselves that it makes no difference to a child whether he sells goods in a store or papers on the street, except that work on the street is worse for him rather than better.

"Let us state the fact that most of us are afraid of the newspapers; we do not try to get the same legislation for the protection of the newsboys that we have for the factory children and the store children because we do not believe that the newspapers will help us. The factory employers were not all like Mr. McGinniss; they did not all help us get the factory laws. They were not all like our New York manufacturer who is the largest contributor to our scholarships. The newspapers may not all be like Mr. McGinniss or Mr. Arnstein, but let us get clearly in our minds that nobody is so directly headed for the juvenile court as the newsboy, and let us get exactly the same protection for the newsboys that we have for other children. Since the Illinois law is the second best in the country, why don't we, when we get this new child labor committee of which Mr. Lovejoy speaks,—take for its first task getting the best laws in the country for the newsboys, just as Illinois set the standard for the whole country when it was the first state to establish the eight hours day for the older children?"

THE CHAIR: "This is a most significant appeal from Miss Todd, who represents the State Department of Factory Inspection of Illinois, and brings to us forcibly one of the most important functions of such committees as this. While I have no authority to do so, I would suggest that, as one of the immediate results of this meeting, the present small Child Labor Committee known as the Hull House Committee, be enlarged to become an Illinois Child Labor Committee, and I hereby appoint Miss Jane Addams and Mrs. H. M. Van Der Vaart, the Chairman and Secretary of the present Committee, and

Miss Todd, as a provisional Committee of three to get together at the earliest opportunity and formulate the plan and personnel of such a committee as I have suggested."

MR. JULIUS F. WENGIERSKI, of Rockford, Ill.: "All of the Chicago papers, especially the Sunday papers, distribute their Sunday papers Saturday night. This means that every newsboy peddling Sunday papers has to stay up all night Saturday in order that you may get your Sunday morning paper. The newspapers should be educated. Let us not stop for a moment in our efforts to make the newspapers realize that they are robbing the youth, robbing our future citizenship. They are bringing out a good deal of publicity, but they are not telling us what they are doing themselves in robbing the future public. The newspapers will not do this thing until we demand it. If we do not get our newspapers on time we find fault with the newspapers. Let us say to them that we would be willing to get these papers a little later if necessary. Let us say that we would much rather have men deliver them than boys. The newspapers will do it if we demand it."

The Chairman then called upon Mr. John M. Glenn to speak briefly of the importance of systematic and scientific investigation.

MR. GLENN: "Some one has said very appropriately that what we want most is not investigation, but doing things. I think the answer is that we want the facts before we can get other people to do things. You cannot get the newspapers, who are the greatest educators of the people, to work for you until you get your evidence very strongly together and have them present it to the public. I think whatever we do in the way of investigation, we should do very thoroughly. Unless we do that, it sets us back rather than ahead."

MISS McDOWELL: "I think we have enough facts on the newspaper question now. What we need is money to popularize those facts until we reach the common people who read the newspapers and are able to let the reading public know how they get their papers, we cannot do very much. When that information is brought home to them, something will be done."

MISS TODD: "That is why we need a Committee. I cannot tell you how rejoiced I am to think we are going to have the public back of us, helping to work out these things which we know are wrong, and which we cannot remedy without this Child Labor Committee, that will give us some sense of co-operation and work together with us. The inspectors must have that assistance. Children who go to school and sell papers get up so early in the morning that they are so stupid during the day they cannot do anything. That was clearly demonstrated to me during my experience in teaching school."

A delegate replied: "I have had instances in school where children have gone to sleep over their desks because they got up at two or three o'clock in the morning to put out city lights and to sell papers. In those instances we warned the parents to take the children away from their work. Where they would not do it, we prosecuted them for contributing to the delinquency of their children."

DR. RYAN, St. Paul: "I have not been able to attend the meetings of this conference in previous years, so I am sorry that I missed the opportunity of learning so many things, and perhaps also what I have to say has been said already, better than I could say it; but the thought occurred to me this afternoon that this child labor movement has a much wider significance than merely in connection with the welfare of the children themselves. I think it has an immense importance for the betterment of labor conditions in general. As I view the matter, the social industrial system of the future will have to be either socialism or a humanized and regulated system of competition. One of the essential methods of humanizing and regulating competition will be to secure what has been called the national minimum; the national minimum of advantages or of welfare for all workmen. The national minimum of safety and sanitation and protection against advantage, against non-employment, against accidents and sickness, and last and perhaps most important of all, a national minimum of wages; that is to say, a wage which will be sufficient to maintain men decently. Then above that wage let men go as far as they can through their productivity or through their efforts in any way that is honorable.

"I think this child labor movement is an important move towards that national minimum of wages. We know very well the deplorable conditions in England during the period known as 'wage slavery' which were brought about largely because women competed with men and thereby brought down the whole wage scale.

"Women to-day are doing the same thing. That is, of course, a tremendous problem. I do not know how that can be remedied, the fact that women are bringing down the wage scale of men by competing with them and working for less wages; but the competition and the bringing down of the wage scale by children can be prevented and will be prevented to a great extent by the child labor movement.

"If we can get conditions everywhere so that the children will not work generally until they are sixteen years of age, the number of children at work will be much less, and the general effect on the wages of adults will be much smaller than it is at the present time. Those children who are at work will be much better able to take care of themselves and to get fairly decent conditions of wages and employment than the children working at present are able to get."

MISS JEAN M. GORDON, New Orleans: "I would like to ask any of the states that have a sixty-hour week provision, but no regular stipulated number of hours per day, as to what is done in the matter of the length of the working hours per day. The Louisiana law is sixty hours per week, and some of the manufacturers contend that they can shorten up one day and lengthen another.

"The point I have in mind is the laundry work. A great many of the laundries work the women until eight or nine o'clock at night two or three nights a week, and especially will that be so with the coming on of the winter travel South, when the Mardi Gras festivities are on and the city is

crowded to overflowing, and the laundry work has to be gotten out in maybe a twelve or twenty-four hour limit. For instance, the women do not come to work on Monday until one o'clock; that gives them six hours off on Monday. Then they tack on to three other days of the week either two or three hours, as the case may be, to the night work."

MISS TODD: "After sixteen years of age I know they work continually in Illinois. After sixteen years of age they can work all night and there is no law by which the hours can be restricted."

EDWARD W. FROST: "We have the same rule in Wisconsin. No child under sixteen years of age can work in a laundry in Wisconsin, but after sixteen they have the inestimable privilege of working themselves to death."

THE CHAIR: "Is there anyone here representing a state that has regulated the employment of girls or women in laundries? The National Consumers' League made a substantial contribution to the literature on this whole subject by compiling material for the United States Supreme Court in the Oregon case, and I wish, if Mrs. Kelley is willing, she would say in two or three words what was shown in that compilation and as to its result."

MRS. KELLEY: "Well, that was a terrible disillusionment. The United States Supreme Court ruled that the Oregon law is good law so far as the Federal Constitution is concerned. The Oregon law says that a woman may not be required or permitted or suffered to work longer than ten hours in twenty-four in any factory, mechanical establishment, or laundry. But now what do the state courts say? The Court of Appeals of the State of New York, when asked to sustain and enforce the substance of the Oregon law, says, 'Oh, the Supreme Court of the United States only meant that for Oregon. The Supreme Court of the United States only meant to restrict the working hours of women in Oregon. Oregon does not get into conflict with the Constitution of the United States.'

"But the Constitution of the State of New York makes it impossible to restrict the working hours of women and so apparently the other fifty-one states and territories now have to amend their state constitutions to comply with the Oregon constitution."

MR. EDWARD W. FROST: "May I say one word as a lawyer on this last point? Every state is supreme on all these things, but the splendid victory won by Mr. Brandeis and the National Consumers' League in the Oregon case has silenced in each state the claim that it is unconstitutional and affecting federal rights to limit the work of adult women and girls over sixteen. That does not settle the law for each individual state; it cannot, under our constitution, but it has given us great assistance and I think it will even ultimately bring around the Court of Appeals of New York."

MISS McDOWELL: "We have been advised by experts, and by this wonderful brief of Mr. Brandeis, that I am told was worked up for him by various women, and I think personally that in order to have these laws beyond the pale of unconstitutionality, we must put them under the head of health. If you get them there for the protection of the health and get them out of that realm of the freedom of contract which we shall have to fight

for a long time, I think we are safe and that is what we intend to try to do here, to get our next law under the head of protection of health."

SENATOR JAMES R. McDOWELL, Mississippi: "I will say that there are certain provisions which in no wise affect a woman's right to contract in our state, except on the ground as Miss McDowell says, of health, and the further ground of morality. For instance, the law in our state forbids a girl, or a woman for that matter, working in any place where intoxicating liquors are sold. At least that was the old law when prohibition went into effect the first of the year. That was on the ground of public morals; and there are others covered on the ground of public health, not only of the woman or mother, but of her children and the children that should come. But it is not interfering at all with her freedom to contract."

MR. GLENN: "I would like to say that Doctor Favill read, at the International Tuberculosis Congress, one of the ablest papers I have heard read on that line of thought, and I would advise everybody interested in the question of the police power and public health to read that paper. It was published in the tuberculosis number of *Charities and the Commons*, in April, 1908."

In closing the conference, the Chairman said: "To me it is always a moment of sadness because while I appreciate the permanent value of the papers and addresses given and all the inspiration we have received, I instinctively look out into the next twelve months and think of the hard battles we must fight and of the many respects in which we shall fall short of the ideals and standards we have set for ourselves during these inspiring hours.

"I trust that we may be encouraged by each other's help. The office of the National Child Labor Committee in New York does not claim to be the embodiment of a great amount of wisdom. What we do claim, however, is that we probably receive more inquiries and more suggestions from various parts of the country than come to any other point on this one subject, and we shall greatly appreciate it, when you have any question to ask or any knotty problems to be solved, and have no one nearer at hand with greater wisdom to whom you can refer them, if you will send them into the office of the National Child Labor Committee. We do not claim to be able to answer them, but we claim that we shall probably be able, without much delay, to refer them to someone in some other part of the country who has faced and met and perhaps solved the same problem that troubles you.

"I want you to understand that I am not asking for your money in the invitation I wish now to extend, for it costs the minimum fee practically to carry to our members the literature we send you; and when we ask you to pay a membership fee of two dollars a year we are simply asking you to allow yourself to receive our publications, as that fee just about covers the cost of sending them to you.

"We want you to join the National Child Labor Committee, because when any important measure comes up like this proposed Federal Children's Bureau, we want to know of several thousand people scattered through the

country to whom we can send the latest news on the subject and ask them to do certain specific things.

"Here is a case in point: To-day the interest in the minds of a number of Senators and Representatives in Washington as to this Federal Children's Bureau is due to the fact that there are several thousand people in the country who are writing them and getting other people to write them and getting the church to pass resolutions, and doing other things to impress upon these representatives what they want. A man cannot be a fair representative of his constituents unless he knows what his constituents want him to do, and the only way he can know that is for us to tell him what we want. For this reason we desire to have you join us in this great campaign. We are just at the beginning, as you can see by the points brought out in the papers presented at this conference; we are just at the beginning of the solution of this complicated national problem."

A formal resolution of thanks to the local Committee, the people of Chicago and the newspapers for the publicity which they gave the proceedings, and to all others who helped to make the conference a success, was enthusiastically adopted, and the conference adjourned *sine die*.

**THE ANNALS of
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**Conservation
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Economic Prizes

—SIXTH YEAR—

In order to arouse an interest in the study of topics relating to commerce and industry, and to stimulate those who have a college training to consider the problems of a business career, a committee composed of

Professor J. Laurence Laughlin, University of Chicago, chairman;
Professor J. B. Clark, Columbia University;
Professor Henry C. Adams, University of Michigan;
Horace White, Esq., New York City, and
Hon. Carroll D. Wright, Clark College,

have been enabled, through the generosity of Messrs. Hart, Schaffner & Marx, of Chicago, to offer in 1910 prizes under two general heads. Attention is expressly called to a new rule that a competitor is not confined to subjects mentioned in this announcement; but any other subject chosen must first be approved by the Committee.

I. Under the first head are suggested herewith a few subjects intended primarily for those who have had an academic training; but the possession of a degree is not required of any contestant, nor is any age limit set.

1. The effect of labor unions on international trade.
2. The best means of raising the wages of the unskilled.
3. A comparison between the theory and the actual practice of protectionism in the United States.
4. A scheme for an ideal monetary system for the United States.
5. The true relation of the central government to trusts.
6. How much of J. S. Mills' economic system survives?
7. A central bank as a factor in a financial crisis.

Under this head, CLASS A includes any American without restriction; and CLASS B includes only those, who, at the time the papers are sent in, are undergraduates of any American college. Any member of CLASS B may compete for the prizes of CLASS A.

A First Prize of Six Hundred Dollars, and A Second Prize of Four Hundred Dollars

are offered for the best studies presented by CLASS A, and

A First Prize of Three Hundred Dollars, and A Second Prize of Two Hundred Dollars

are offered for the best studies presented by CLASS B. The committee reserves to itself the right to award the two prizes of \$600 and \$400 of CLASS A to undergraduates in CLASS B, if the merits of the papers demand it.

II. Under the second head are suggested some subjects intended for those who may not have had an academic training, and who form CLASS C:

1. The most practicable scheme for beginning a reduction of the tariff.
2. The value of government statistics of wages in the last ten or fifteen years.
3. Opportunities for expanding our trade with South America.
4. The organization of the statistical work of the United States.
5. Publicity and form of trust accounts.

One Prize of Five Hundred Dollars

is offered for the best study presented by CLASS C; but any member of CLASS C may compete in CLASS A.

The ownership of the copyright of successful studies will vest in the donors and it is expected that, without precluding the use of these papers as theses for higher degrees, they will cause them to be issued in some permanent form.

Competitors are advised that the studies should be thorough, expressed in good English, and although not limited as to length, they should not be needlessly expanded. They should be inscribed with an assumed name, the class in which they are presented, and accompanied by a sealed envelope giving the real name and address of the competitor. If the competitor is in CLASS B, the sealed envelope should contain the name of the institution in which he is studying. The papers should be sent on or before June 1, 1910, to

J. Laurence Laughlin, Esq.
The University of Chicago
Chicago, Illinois

Conservation of Natural Resources

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PART ONE

Public Forestry on Private Lands

FORESTRY ON PRIVATE LANDS

BY HON. GIFFORD PINCHOT,

**UNITED STATES FORESTER, AND CHAIRMAN OF THE NATIONAL CONSERVATION
COMMISSION, WASHINGTON, D. C.**

PUBLIC REGULATION OF PRIVATE FORESTS

BY PROFESSOR HENRY SOLON GRAVES

DIRECTOR, FOREST SCHOOL, YALE UNIVERSITY, NEW HAVEN, CONN.

CAN THE STATES REGULATE PRIVATE FORESTS?

BY F. C. ZACHARIE, ESQ.,

OF THE LOUISIANA BAR, NEW ORLEANS, LA.

FORESTRY ON PRIVATE LANDS

BY HON. GIFFORD PINCHOT,

United States Forester, Chairman National Conservation Commission,
Washington, D. C.

The forest area under public management does not exceed one-fourth of the total forest area of the country. It is not large enough or productive enough to satisfy, even under the most intensive management, more than a fraction of the national demand for wood. We must count, therefore, upon forestry on the lands now privately owned if the United States is to preserve its forest independence and grow the timber which will be needed in the future. The only choice is between a very large addition to the area under public management and management by the owners themselves. What, then, has been the result of private forestry thus far, and what is the prospect of its widespread practice?

What Has Been Done in Private Forestry

Complete information regarding the practice of forestry on private lands is impossible to secure. Since the Forest Service made its offer of coöperation with private forest owners in 1898, examinations of tracts aggregating not far from 10,000,000 acres have been made. This is, of course, but the merest fraction of all the forest in private hands; nor is even this all under forest management. The most important result of this coöperative work is that a large number of private owners have begun at least a partial practice of forestry. However fragmentary, this is of real value, chiefly for its widespread educational effect. In a number of cases working plans were adopted and are being carried out to the satisfaction of the owners. Doubtless many more large undertakings would have been attempted had the facts justified an expectation of larger returns.

Although the conservative management of private forest lands on a considerable scale can scarcely be said to exist as yet, more careful methods are gradually coming into use, while there are half-a-dozen conspicuous examples of thorough and profitable management which indicate what forestry may be expected to accomplish under

favorable conditions. There is reason to believe that forestry of some sort is practiced on private lands far more extensively than is generally realized or definitely known.

The heavy loss from fire has led to the largest progress thus far made in this direction. In Oregon, Washington and Idaho large tracts have been placed under organized protection by associations of timber land owners, each member of which pays pro rata toward the cost. The four fire protective associations of northern Idaho expended for fire protection in 1908 \$52,284.11 for protecting directly 1,257,787 acres of forest owned by members, and incidentally large areas of adjoining forest. The average cost, including fire fighting, was a little over four cents per acre. The reports of the associations show that the main emphasis was laid upon patrol. Thus one association apportioned its expenditures as follows:

Fire fighting	10.57 per cent.
New trails	16.98 per cent.
Cleaning old trails	12.98 per cent.
Patrol	49.23 per cent.
All other items	10.24 per cent.

In proportion to the completeness of patrol the fire loss is reduced. The forest in any part of the United States can be kept practically free of fire at a cost of from two to four cents per acre spent upon patrol. Next to patrol the chief expense was trail building, which in the above case took 29.96 per cent. of the total protection cost. Provision is made for tool boxes at convenient places, for tools and for horses, as well as for lookout stations.

Equally successful results have not yet been achieved over large areas of private forest lands by either individual or associated efforts in other parts of the country. But numerous small tracts in the East and South are now fairly well protected at moderate cost, and the owners report satisfactory recuperation and reproduction on the protected areas. A case worth mention is that of an owner in the South-central region, a coöperator with the Forest Service, who is applying a working plan in the management of large holdings. Difficulty was found in keeping fires out of the cut-over land, owing to the carelessness of neighboring settlers. Therefore a tract of 1000 acres was set aside and given special protection. Fires have been kept out of this tract for five years, and the owner finds that full reproduction is now the reward of his efforts. Where the busi-

ness wisdom of protecting a large tract is in doubt such a test may well be tried. It is not costly, and the results speak for themselves. In most cases an object lesson of this sort, driving home the truth about fire protection, will convince the forest owner that he cannot afford fires.

At Corbin Park, in central New Hampshire, some 17,000 acres of forest have been carefully lumbered for five years in accordance with a working plan made by the Forest Service. The park is intended mainly for a game preserve, and all forest work is arranged with respect to its effect upon the game. Nevertheless, the revenue derived from the sale of live game and of forest products more than covers the expense of management and yields a satisfactory profit on the investment, while the future forest crop is steadily coming on. One of the larger private estates on the Hudson offers another example. The property, which embraces 1000 acres, has about 300 acres under forest, from which cordwood from improvement cuttings sells well in the local market. Good roads and the easy accessibility of the tract make it possible to handle the forest in this way as profitably as if large clear fellings were made, so that the maximum financial yield is secured with the minimum of disturbance to forest conditions. Where the stand is sparse planting is done, and the stock is raised in a forest nursery upon the estate. The methods employed and the results secured are of great educational value to the whole community.

A general working plan for a tract of 14,000 acres on North Manitou Island, in Lake Michigan, is being carried out with results which are thus far highly satisfactory to the owners. This plan includes a conspicuously successful system of fire protection, the control of grazing, nursery and forest planting work, improvement cuttings, the present restriction of cutting to overmature timber, the close utilization of lops and tops for cordwood, and the gradual introduction of conifers into the stand.

That good management pays is strikingly shown by the experience of the University of the South, at Sewanee, Tenn. In 1900 the University undertook to manage its 7000 acres of forest in accordance with recommendations made by the Forest Service. Immediate financial returns were desired, while expenditures for improvement were not permitted. In 1899 the University had considered an offer of \$3000 for the merchantable timber, and regarded it favorably.

At the time the working plan was made fires were injuring the forest by burning away the humus and damaging the timber. The plan recommended took into consideration the probable rise in local stumpage values, and embraced a series of fellings instead of an immediate sale of the whole merchantable stand. Since the plan went into effect the sum of \$18,101.76, above all expenses, has been received from the sale of timber. Meantime, fire has been controlled, excellent reproduction follows and the perpetuation of the forest is assured.

Among those private owners of forest who themselves make use of the timber produced, a number practice forestry in order to insure a permanent supply. Conspicuous among these are wood pulp and paper manufacturers, who largely own the forests from which they get their logs. In many cases they are limiting the cut to what the forest grows each year, thus insuring a permanent sustained yield. They also safeguard the forest by efficient fire protection. Where their present holdings are too small to meet the annual demand, these owners are buying new tracts of forest.

In point of variety and scope the work done on the Biltmore estate, in North Carolina, is remarkable. The forests, which cover 130,000 acres, are made self-sustaining by the production of various forms of material. Four million feet of lumber, five thousand cords of tannic acid wood and fuel, a thousand cords of tanbark, and several hundred cords of pulpwood are cut every year. At the same time the forest itself is steadily increasing in value. Workmen employed along the boundaries of the forest do duty as fire guards. Thus, fire protection is secured at least throughout all the accessible parts of the tract. In connection with all lumbering operations permanent logging roads are built. These minimize the present cost of transportation and will greatly reduce the cost of marketing future crops. The extension of the roads is steadily adding to the investment value of the forest. Moreover, they serve also as a network of fire lines. Forest planting is practiced where fire will not threaten its success. The experimental work in silviculture which is done at Biltmore is certain to make important additions to the science and practice of American forestry.

Since extensive forest planting is to be expected only when the conditions surrounding forestry are far more stable and advantageous than they are at present in most parts of this country, it is

not surprising that it has as yet been little attempted by private owners. What forest planting has been done on private lands is mainly the result of artificial encouragement, as by the Federal timber-culture laws, now repealed, or by bounties or tax exemptions offered by the States. The bounty and exemption laws are, as a rule, unsatisfactory in their results, and the forest area of the country has not been much extended by them. The total area of planted forest does not exceed 965,000 acres. Yet the total area of land which would yield its greatest returns from planted forest is more than 50,000,000 acres. In New England forest planting has been particularly successful, and is now being done on an increasing scale. Not including old plantings that have been cut, approximately 25,000 acres have been planted. From the trees that were planted in 1908 about 60,000,000 feet will be available when the plantings grow to merchantable size.

Realizing the advantage of an assured future timber supply, several railroads are adding to their forest holdings and managing their forest properties for the production of a sustained yield of cross-ties for their own roads. The success and economy of preservative treatment now make it possible to use for cross-ties the cheaper and more abundant woods. The practice of forestry by the railroads is, therefore, especially significant, because it includes, in addition to conservative management, the commercial use of timbers of lower grade. In a number of cases planting is done, also with a view to tie production, though such planting is usually a subordinate part of the forest policy.

As widely scattered illustrations of what forestry may do and is already doing these concrete examples are noteworthy. But as progress toward the general practice of forestry by private owners their total amount is altogether insignificant. To judge whether any general movement toward forest management on private holdings may be expected, we must consider what the future situation is likely to be.

What Discourages Private Forestry

Before the future of private forestry can be predicted the obstacles which impede it must be considered.

1. Low stumpage prices hold down forest values and create indifference to them. Forestry means an investment in growing

timber. If the investment is to show a profit the product must not sell below the cost of production. When the logs from the tract of an owner who is practicing forestry go to market their price is fixed by that of the general supply. Cheap stumpage discourages expenditure for protection and management. Ultimately a tree must sell for what it costs to grow it plus the grower's profit. Stumpage prices at this rate would not, it is true, guarantee the practice of forestry, but they would justify the outlay without which forestry is not practicable, and would recommend this expenditure to the owner as good business.

It is worth remarking that a lumber tariff supports stumpage prices. Putting lumber on the free list would enlarge the cheap stumpage area, and so tend to prevent stumpage from selling for enough to cover the cost of producing it. Further, it would not reduce the cost of lumber to the consumer, to whom "cheap lumber" rings persuasively. In my judgment, the entire advantage of a repeal of the lumber tariff would be appropriated by manufacturer and retailer, and the public would profit not at all.

In the end the public, that is to say the consumer, must pay the penalty for the rapid and wasteful harvesting of the present timber supply before a new one can be grown. From the national viewpoint, there is such a thing as having lumber too cheap for our own good. It is as though one were able to buy coal for half the winter below the wholesale price from a coal dealer about to leave town, but for the rest of the winter not able to buy any coal at all. I do not believe that the repeal of the lumber tariff would have any very important results in any direction; but in so far as free lumber would postpone the practice of private forestry, which it would tend to do, it would mean the continued devastation of forests on private lands, and in the end a market rise of timber toward famine prices, while it would lessen the immediate prospect of perpetuating home supplies.

2. The profits of forestry are lower than those offered by most investments in the United States. In older countries the difference, when it exists at all, is far less marked, because of the smaller opportunities for speculative profit. The rather unstable business conditions which prevail in new and relatively undeveloped countries like ours accentuate the preference of capital for enterprises with larger margins of profit.

3. A desire for quick returns rather than long-time investments is another bar to the practice of forestry in the United States. It is especially effective when no returns at all can be expected for some years. This latter obstacle is not always encountered; but when a beginning must be made by forest planting, returns must, of course, wait until the planted forest has acquired market value. Where mature forest forms the initial investment an immediate and usually a sustained yield can be secured.

4. The great danger of destructive forest fires often forces private forest owners to rush their timber to market. In many cases the cost of protection, or an exaggerated estimate of it, appears prohibitive to the owners. It must never be forgotten that without fairly effective protection from fire there is little hope of applying forestry as a permanent system of management. What can actually be done in the way of fire protection, and at what cost, has already been cited in the case of the fire protective associations of the Northwest. Wherever, as notably in the Northwest, coöperation with the state is secured in fire patrol on private tracts, a powerful stimulus is given the practice of private forestry.

5. In the minds of most large stumpage holders the most serious obstacle to conservative lumbering lies in a faulty system of forest taxation. It commonly happens that the working of tax laws discourages the holding either of standing timber or of cut-over lands. The fear of excessive or ill-devised taxation often furnishes the most powerful motive for reckless and premature cutting, and the actual tax burden has caused much cut-over land to revert to the state. It is true that tax assessors have sometimes been lenient in dealing with timberlands, so that in practice the effect of existing laws has not always been without mitigation. Nevertheless, there is no security to the owner of such lands that this state of things will continue. This is a powerful deterrent to the practice of forestry, which requires a long-term investment. In many cases high assessment, especially on non-resident owners, has actually forced the cutting of timber either prematurely or without provision for a second crop. In short, present methods of forest taxation too frequently raise the cost of timber production so high that private forestry becomes artificially and unnaturally precarious, and almost everywhere they menace the owner with a burden greater than the business of growing timber should in fairness be asked to support.

What May Encourage Private Forestry

The days of cheap stumpage in the United States will soon be over. Neither opening the doors to foreign timber, the use of substitutes for wood nor any other device can much delay the advance in forest values here. Foreign supplies are, or soon will be, insufficient to meet the growing home demands. A study of the world's timber supply shows that there will be no continuance of a surplus in the countries which are now exporters of timber. In time most countries, and we very soon, will have to face the alternative of home-grown wood or no wood at all. Therefore, as the forests of the United States, already over-cut, dwindle before axe and saw, there is bound to come so strong a rise in the price of all stumpage as to amount in the end to a timber famine. Just as over-cheap stumpage means wasteful and destructive logging, so stumpage at the cost of production, more than any other single factor, will assist to bring about more conservative management of productive private forest properties. When immature timber is understood to represent a substantial investment it is certain to be considered better worth looking after than is now the case. Protection and management for sustained yield will be given to valuable private forests, just as a permanent supply of raw material receives due attention in the establishment of a costly industrial plant. General business conditions also will tend to become more stable and uniform, and investments which yield a low interest rate and are permanent in character will grow in attractiveness.

The necessities of consumers of wood or of other forest products will promote the practice of forestry by certain classes of interests. Thus, white pine has already been extensively planted by New England box manufacturers; mining companies using large quantities of mine timbers, and pulp and paper manufacturers, already find it worth while to provide for permanent supplies; and railroads, at considerable expense, are planting forests, and planning management of lands already timbered, for the production of cross-ties. In like manner concerns which use or supply water are likely in increasing numbers to own permanently forested catchment basins, which will yield them a supplementary income in wood while regulating stream flow or keeping the water pure. It may well be that private forestry is to have its first development in this field rather than among those who supply timber to the general market.

The Need of Legislation

Legislation may be expected to promote forestry on private lands both by encouragement and by regulation. The fire risk and excessive taxation are the greatest hindrances to forestry. Some excellent state fire laws are in force. The principal present want is efficient fire patrol; the burden of this should be divided between private owners and the state. The greater part of forest taxation can and should be made to fall upon the owner when he is in the best position to carry it—that is, when his forest crop is marketable. This is the practice in countries in which forestry is extensively practiced on private lands. Our state laws should be amended to secure the same result. Every effort should be made to get away from the present practice, which in too many cases exacts a penalty for the production of timber.

The regulation of private forest management by the state must move cautiously, yet the impairment or destruction of the efficiency of forests needed to protect the land or water resources should if necessary, and probably will, be made the subject of restrictive legislation. In a recent decision the Supreme Court of the United States held, in effect, that a state has the right to prevent the impairment of its resources. The application of this principle cannot fail to be extended as the evils which result from damage to protective forests are better realized. Such regulation will not, however, deprive the forest owner of his property, though it will restrict him in the use which he may make of it, just as building laws restrict the owner of city property. If the public interest requires that forests should be maintained without the possibility of beneficial use by the private owner, the state itself should take the property over, of course with due compensation.

In the present status of private forestry and of the law it is difficult to predict how far the courts will go in protecting the interest of the community against the results of wasting and mistreating the forest, but the tendency in that direction is growing in strength with remarkable rapidity. The solution reached in certain European countries may be found applicable to our own conditions. Private owners in these countries may handle their forests as they please provided that they do not mismanage them so as to injure other property. To this end private working plans, or plans of felling, are viséd by the local state forest authorities.

One thing at least seems certain—that the public welfare is so vitally concerned in the conservation of forest resources as to make it unthinkable that the private owner alone can be permitted always to decide whether or not forest conservation shall take effect. In this case it is impossible that a man should be allowed to do altogether as he will with his own. The property rights involved must, of course, be recognized and equitably dealt with. But whether through legislative regulation and restriction, purchase through voluntary sale or condemnation, increasing the attractiveness of forestry, or in the natural course of economic development, the country must be assured of permanent supplies of timber.

Nova Scotia already requires timber land owners to contribute on an acreage basis toward the maintenance of a fire-protective system. Since bad conditions on one man's property are a source of danger to all other forest holdings in the neighborhood, regulations concerning the disposal of slash and similar matters might very logically follow or accompany legislation to establish state patrol of forested regions, and the latter would naturally be paid for, in large part at least, by those who own the property. It is a well-known and widely-applied legal maxim that a man must use his own property in such a way as not to injure another. Is there any reason why forests should be exempt from its application?

But, whatever measures of compulsion it may be necessary to employ against the misuse and destruction of a fundamental and necessary resource, there rests a responsibility on the public as well as on the lumberman. If the owner of timber land owes it as a duty, which is likely sooner or later to be required of him, not to ignore the demands of the common welfare, the commonwealth owes it as a duty, both to all its citizens and to the timber land owners themselves, to promote the practice of private forestry through the removal of all artificial obstacles. It should be the task of legislators and administrators to remove these obstacles, and of public-spirited citizens to organize an enlightened and vigorous public opinion, without which the required laws can neither be enacted nor enforced. Once assured of the protection and encouragement to which they are entitled as custodians of a resource necessary to the common welfare, private forest owners will practice forestry so far as it pays them to do so. Where private incentive proves insufficient to conserve the forests the state will need to intervene.

PUBLIC REGULATION OF PRIVATE FORESTS

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In the past the policy of the Federal Government and of the states has been to dispose of the public lands as rapidly as possible. As a result the bulk of the best forest lands of the country—about three-fourths of the forest area—is in private ownership. These lands represent the most accessible and most productive forests, while those publicly owned are areas which were not valuable enough to attract investors before the policy of restricting their sale was introduced. It is probable that the amount of standing merchantable timber in the public forests is less than one-fifth of the total stumpage of the country. This is true in spite of the fact that there has been but relatively little lumbering in the public forests.

It has been established that the total annual increment of the forests of the country is less than one-third of the amount required by the people for use. The increment of the public forests is increasing; that of private forests is, on the whole, decreasing. While the forest area of the United States, if managed properly, is capable of producing a much larger amount of timber and other forest products than are now annually required for use, there will inevitably be a shortage if the forests continue to be handled as at present.

It is a well-established fact that the destruction of the forests at the headwaters of rivers affects the regularity of their flow. It is the testimony of many manufacturers that the rivers from which they secure power have of late years been much less regular than formerly. This increasing irregularity and the reduction of the minimum flow of the rivers have been very generally attributed to recent heavy lumbering and the destruction of forests by fires in the mountains. While the effect of lumbering on river flow has been popularly exaggerated, it is nevertheless a fact that the conservation of the forests at the sources of streams is of great importance. The mountain forests of the West are so largely owned by the

Government that a permanent forest cover at the headwaters of important western streams is in large measure insured. Nearly all of the mountain forests of the East are privately owned. For the most part these are not being managed at the present time in a conservative manner and there is danger of excessive clearings at the headwaters of our eastern rivers.

The facts explained above make it obvious that the public forests are not sufficient to guarantee a supply of timber and that our future needs will be met only by the practice of forestry on a large portion of what is now private land. It is true also that the water interests in the East require forest conservation in the mountain areas now privately controlled.

There are three possible methods of securing forest conservation of forest lands at present privately owned.

1. State regulation of private forests.
2. State ownership through purchase of large reserves.
3. Practice of forestry by private owners under state co-operation and assistance.

The country has just come to the realization that we are wasting our forest resources and that unless this waste is checked there will be serious consequences. A national movement of this character is necessarily accompanied by a misunderstanding of the exact problem on the part of many persons. It is, therefore, not unnatural that there is a tendency toward legislation designed to regulate private forests, in an endeavor to secure the establishment of forestry as quickly as possible, without a sufficiently careful consideration of the effects which the regulations proposed would be likely to have in actual practice.

The tendency toward the public regulation of the management of private lands has been manifested in bills offered in the legislatures of various states, in reports of state forest officers and in articles on forestry in magazines and other publications. For the most part these propositions have not been based on a thorough knowledge of forest conditions or of scientific forestry. In many instances, they are unsound in principle both from the standpoint of economics and of forestry. Many of the proposals are not capable of practical application and, if they were, would not accomplish the desired results. The efforts toward public regulation of private holdings are significant as showing a commendable realiza-

tion of the need of forestry. There is danger, however, that these efforts may be misdirected.

The proposals for public regulation of private forestry have one or more of the following purposes:

1. Protection from fire.
2. Regulation of cuttings in order to maintain forest production.
3. The protection and control of soil and water flow.

In former days there existed a spirit that the individual could do what he would with his own forest, even if his neighbor's property was endangered. Recently there has been a growing sense of individual responsibility, particularly in the matter of forest fires. Already many states have laws making the malicious firing of forests a misdemeanor and imposing penalties for the careless use of fire. In some states, burning a fallow and burning brush are forbidden in certain seasons, or a notification must be given to one's neighbor or to a specified town officer before such burning is undertaken. The principle of individual responsibility in starting forest fires is, therefore, well established in a number of states and will doubtless soon be in the laws of all states.

It is recognized by students of forest policy that fire protection cannot be entirely solved by the individual and that laws preventing the starting of fires by design or carelessness will not suffice. Adequate protection can be secured only through organization. There must be a definitely organized service to prevent fires and to extinguish those which may be started from one cause or another. Just as city property is protected through a fire department, so forests must be protected by an organized fire service, adapted to local conditions. The attitude of the private owner is that the state should assist him in the protection of his property which it taxes, that the taxation of forest lands should be based on sound principles, which is not the case at the present time anywhere in the country, and that this taxation should pay for the protection of forests and entitle him to such protection.

From the standpoint of the state it is reasonable to expect that in case a fire service to assist in the protection of private lands is established, the owners should leave their forests in as good condition as is practicable for the prevention of fires and for their extinguishment if started. It is a new principle, which has been proposed in

a number of instances, that the state may require private owners to dispose of the slashings after lumbering or in other ways put their forests into good condition for protection.

This principle has been definitely adopted by the advocates of forestry in the lake states. Official representatives of Michigan, Minnesota and Wisconsin recently met in a so-called lake states forestry conference at Madison, Wisconsin, and formulated a definite platform with reference to forest legislation. The portions of the platform, which immediately concern the present discussion, are as follows:

"WHEREAS, the experience of the fires of the last season has fully demonstrated that the leaving of debris over large areas of land in the form of 'slashes' seriously threatens the safety of all wild lands and forests, as well as farm settlements, and even towns; therefore, be it

"*Resolved*, that all persons cutting and exploiting timber in any part of the lake states here represented should be obliged to dispose of the debris in such manner that it shall not be a menace to the forests; that failure to do this should be punished by a fine commensurate with the extent of the operations and consequent possibility of damage; that the timber cut or standing, as well as the land, should be held to secure the payment of such fines imposed, and that full authority be given to the proper authorities to carry out and interpret the law providing for this disposal of debris or 'slashings.'

"WHEREAS, in the matter of forest fires this conference realizes that these forest fires in the lake states during any dry season really take on enormous proportions; that we are dealing, therefore, with great calamities affecting human life as well as millions of acres of land and many millions of dollars worth of property; from this it follows that any measures adopted should be adequate to the situation; that efficient preventative and protective measures are the only kind that will really pay, and that such protection in a single year can and will save enough property, such that the interest on the material wealth saved will easily maintain such service or protection; therefore, be it

"*Resolved*, that forest fires, being one of the greatest enemies of the state, and thus akin to riot and invasion, the executive power of the state should be employed to the utmost limit in emergencies in their suppression and control for the protection of the lives and property of the people."

These recommendations have been definitely formulated in a proposed bill now before the Minnesota legislature. The clause of special interest is as follows:

"SEC. 1787d. Any person or corporation who cuts or fells or causes to be cut or felled timber or wood for commercial purposes shall pile, and under

(500)

charge of a competent person or persons burn the slashings (by which is meant the branches, tops and refuse) at the time of cutting; provided, that when the cutting is done between the months of March and November, the slashings shall be piled at the time of cutting and be burned during the following winter."

The same principle is at the basis of a proposal which is to be presented to the New York legislature, requiring private owners to lop the tops after lumbering; that is, to cut off the branches in order to bring them in close contact with the ground, an operation which hastens their decay and thereby lessens the danger from fire.

It has been clearly demonstrated that in the pine forests of the lake states burning of the tops at the time of cutting constitutes the best measure for disposing of them. It has also been shown that unless this material is destroyed, it is practically impossible to guard against serious damage by fire. In the Adirondacks, on the other hand, the character of the forest is such that there are many small trees growing in mixture with the older ones, so that burning of brush would inevitably injure the small timber. Moreover, the forest is damper than a pine forest and it is not so necessary to burn the slash. If the limbs are scattered so as to come in contact with the ground, they absorb moisture so quickly that the measure is adequate to put the forest into condition for protection.

The principle at the basis of these propositions seems to the writer fundamentally sound. The objections which would naturally be brought against the proposals are:

1. That a specific measure like brush burning in a given region might not always be necessary or the best method of fire prevention.
2. That it would be exceedingly difficult to carry out such a law in practice.
3. That it would be an opening wedge for further legislation such as required construction of fire lines.

It is true that brush burning is not always the best method of preparing the forest for fire protection. Even in the pineries it may sometimes be better to lop the tops and scatter the brush. Within a pine region there are necessarily some types of forest in which brush burning would be as injurious to the trees left standing and as unnecessary as in the Adirondack Mountains. Moreover, in a few years with better fire protection than now there will be considerable reproduction coming up throughout the forest and different

conditions will prevail. These facts must be taken into consideration in preparing a law for a given region. There must be sufficient elasticity to permit the disposal of the brush in the way which would be best for the forest and practical for the owner.

There would necessarily be many difficulties in requiring private owners to dispose of brush after lumbering if they were not in sympathy with the provision. There would always be a certain number of individuals desirous of securing the privileges of the state fire protection, but who would be unwilling to comply with the provisions of the law. In the writer's judgment, it would be decidedly difficult to carry out and put into effect required disposal of brush unless it is distinctly to the interest of the land owners themselves, unless the methods are both practical and effective, and unless the majority of the owners themselves approve of the law and desire to see it carried out. If these conditions exist in any given region, such a law is applicable and the difficulties in putting it into effect would not be insuperable.

It would take some years to establish a thoroughly practical system of required disposal of brush. During the first few years of its application, there would probably be a good many fires, and some persons would undoubtedly attempt to introduce further regulations, in the belief that fire patrol and burning of brush are not sufficient for effective protection. In fact, certain individuals have already advocated that private individuals be required by law to construct fire lines. Required brush-burning will be successful only to the extent that it is practical. In the same way the construction of fire lines or any other measures will not be used until they are shown to be necessary and practical. In that event it will be entirely possible to bring them into practice.

In several states laws have been suggested which not only place certain restrictions on private owners for protection against fires, but also prescribe how the forests shall be cut. In most cases the proposed laws forbid the cutting of trees below a certain size.

The most comprehensive bill of this character so far presented is that now before the legislature of Maine. This provides for the establishment of all private forests as auxiliary state forests. An owner must secure a license before lumbering his land. It is unlawful to cut any pine or spruce trees less than ten inches in diameter except where necessary in clearing for roads, yards and similar pur-

poses. All trees must be cut by sawing and the stumps may not be over twelve inches high. The tops must be trimmed, and the brush piled and burned. Where such occur, at least three trees of pine and spruce capable of bearing seed must be left on each acre. If an owner wishes to use another system of management, he may do so upon the approval of the state forester. In return he receives protection from fire and exemption from taxes on all growing timber.

In a bill introduced into the Louisiana legislature last year, there is a provision that no private owner has a right to cut down any tree (except fruit or willow trees) less than twelve inches in diameter. It is further made unlawful to cut the trees in such a way as to injure young growth, and tops and brush must be removed from the neighborhood of young trees so as not to injure them. At various times laws have been proposed in New York forbidding private owners to cut their small timber. Usually the limitation of cut to a certain diameter is the method suggested. These proposals are based on the following assumptions:

1. The continuance of forests is necessary for the public welfare because of their indirect protective influences and the maintenance of a supply of wood, timber and other forests products.

2. The destruction of the mountain forests will result in direct injury through disturbance of the flow of the rivers. A reduction of productiveness through destructive management will result in an inadequate supply of timber and other products.

3. The state has a right to prevent a mishandling of its natural resources which would tend to impoverishment of the people.

The Supreme Court of Maine has rendered a decision¹ that the state has a constitutional right to require forest owners to handle their property in such a way as not to injure the public interests. The decision asserts that the state may regulate the lumbering on private lands in order to protect the streams and also in order to maintain the productiveness of the forests in the permanent interests of the owners themselves and of the general public. This decision, if sustained, opens the way for very extensive state regulation of private business, and already it has stimulated the production of a great variety of proposals of the character of the Maine and Louisiana bills already mentioned. In discussing the legal enforce-

¹March 10, 1908.

ment of the practice of forestry on private lands, it is necessary to keep separate the two purposes: First, to secure a future timber supply, and second, to prevent direct injury through disturbance of river flow and in other ways.

It has already been explained in the beginning of this paper that the future supply of timber depends in considerable part on the production of forests now in private ownership. The Maine decision is to the effect that the state has a right to compel owners to cut their timber in a certain way in order to contribute to the future yield of forest products. Whether the enforcement by law of certain methods of cutting is the best way to accomplish this result is an entirely different question. In the opinion of the writer such an attempt would be unwise, both from the standpoint of state policy and technical forestry. There is a very close analogy between the maintenance of the production of forest products and of agricultural products. Bad farming is certainly a disadvantage to the community at large. Yet we are not forcing the farmer by law to adopt certain measures of cultivation. It is regarded as a much wiser plan to bring about intelligent agriculture through education and other indirect means. It is far better to show farmers how good agriculture may be to their own advantage and to teach them how to practice it than to force it upon them, even if the first methods require a long time for accomplishment. In the same way forestry for timber production should be brought about through state co-operation and assistance and through education and not by legislation.

Lumbering, not accompanied by fire, usually does not result in devastation. Almost always there are some trees left standing which produce seed and gradually re-establish a forest. Sometimes the lumberman leaves the forest in a fair condition for regrowth. More often the productiveness of the forest is enormously reduced compared with that secured under intelligent practical forestry. Examples of the very destructive lumbering may be found in the South, where the mature pines are cut clear and most of the trees removed from areas of considerable size. It nearly always happens that groups of young trees or individual trees too defective for lumber, but still capable of seed production, are left standing in amounts sufficient to enable a gradual return of the forest. It may take fifty years to re-establish the new crop instead of ten years, and the crop

will be a much less valuable one than would result under forestry methods. Thus the average annual increment obtained by ordinary forestry might be 200 board feet and that under destructive lumbering twenty feet. Yet even under the worst methods of cutting some production is secured, provided fires are kept out. If one were to make a large enough investment the growth could be increased much over 200 feet, to a maximum which our studies have not yet determined. It is, therefore, not a question of preventing absolute destruction by the private owner because he does not destroy unless he uses fire. It is a question whether the owner shall maintain his forest production above some specified minimum amount.

The usual method proposed for regulating private forests is to prescribe certain specified rules for cutting to be applied to all types of forest in a given region. Forestry cannot be practiced by rule. A forest is not a uniform crop. It is enormously variable in composition, form, condition and productiveness. The measures necessary to keep up the productiveness must vary with every portion of the forest.

Just what should be done for the maintenance of production depends entirely on the character and condition of each forest, the market conditions, and the special desires of the owners. In many cases a general rule of cutting such as proposed in certain states would not have any better results from the productive standpoint than ordinary lumbering. The Louisiana proposal cited above is a case in point. It advocates the application of a rigid kind of selection system of cutting in yellow pine forests. One of the principal characteristics of the yellow pine forests of Louisiana is that they are composed of stands and groups of trees, each having about the same age. In a mature stand, therefore, the trees below twelve inches are about the same age as those above that limit. Such small trees are usually the poorest in the stand. They have grown very slowly, have been crowded by their neighbors, and their crowns are small and undeveloped. The cutting of a forest under the proposed restriction would leave a considerable number of undersized old trees which would in many cases be blown over and at the best would not grow rapidly after cutting, and would contribute very little to the production of seed. The law restricting the cutting to large trees would, therefore, not secure the results desired.

The bill introduced into the Maine legislature would result in

somewhat better silviculture than the Louisiana proposal. In Maine many forests are composed of trees of all ages mingled together. Such a forest is one in which the selection system of cuttings is applicable. A restriction of the diameter is a rough approach to the methods which a forester would use in some stands in Maine but a rigid rule of thumb would inevitably remove many trees which ought to be left, and leave a large number which ought to be removed for the benefit of the forest and which it would pay to cut. Moreover, there are in Maine some types of forest on which a selection cutting is entirely inapplicable and where its use would inevitably be followed by extensive windfall. The methods of silviculture applicable to Maine are in some cases to cut on a selection system and sometimes to cut clear. In a selection system the method of selecting the trees necessarily varies enormously. No rigid rules can be successfully applied.

The application of a law requiring certain measures of silviculture would be exceedingly difficult. An army of inspectors would be needed to enforce the rules. Great antagonism would be aroused against the law among many owners not in sympathy with it, and effective enforcement would often result in the virtual assumption by the state of the management of the property. It is exceedingly unlikely that the results of enforced silviculture would be any better than those which could be secured through indirect state action.

The experience of Europe is interesting in this connection. In the eighteenth century and the early part of the nineteenth century there were many laws in the different states regulating the cutting on private lands. These regulations concerned the rotation of the trees and the methods of cutting them. Some of them were very similar to measures now proposed in this country. It was found that such regulations could not be carried out in practice and in the recent revision of the laws they have been in large part dropped, with the exception of such as refer to the protection forests. Thus in Germany to-day, there are no restrictions whatever on private cutting on over seventy per cent. of the private forests except within the belt of protection forests.

The worst period of forest destruction has been passed. The Government has already a vast domain of national forests on which the best forestry is being introduced as rapidly as possible. The total area of public forests controlled by the Government will soon

be not less than 200 million acres. A policy of purchase of state forests has been established in eleven states and there is every prospect that this policy will be adopted in most of the other states in a short time. The purposes of the state forests are :

1. To protect critical watersheds.
2. To produce wood and timber especially of those grades which the private owner will be unlikely to supply.
3. To give a practical demonstration of forestry.

It is reasonable to expect that there will ultimately be state forests aggregating about twenty-five to fifty million acres. Thus there will probably be from two hundred and twenty-five to two hundred and fifty million acres of public forests in the not far distant future, constituting about forty per cent. of the present forest area of the country.

There is every prospect that a policy of state assistance and co-operation with private owners will soon be general. As soon as there is a sane system of taxation of timberlands, and adequate protection from fire, owners will begin to practice forestry more extensively than now. Private forestry will further be stimulated by education through the personal work of the state officers and by practical demonstration of the best methods of forestry in the state reserves. Private forestry will accompany the increase in value of woodlands. As the old timber becomes scarcer the value of growing trees will be better appreciated. Already investors are beginning to buy up second growth woodlands with a view to holding them for their future production. There is no reason why practically all the farm woodlots should not be handled as conservatively as is now the case with many of them in the eastern states where there are state foresters. These woodlots comprise approximately 200 million acres. Public regulation of cutting upon them is certainly unnecessary.

If one subtracts the areas likely to be publicly owned and the woodlots from the total forest area of the country, there remain about 125 to 150 million acres. The writer does not believe that with fire protection, reasonable taxation and state co-operation the owners of these forests will practice such a system of devastation as to warrant the public enforcement of rules of silviculture treatment.

One of the common purposes in proposing the public regulation of private forests is the protection of the sources of rivers. The

example of Europe may be cited, where critical areas in the mountains are designated as "Protection Forests." Certain regulations are promulgated for these forests, private as well as public, restricting their use. These regulations which differ in the different countries usually forbid permanent clearings, clear cutting over large areas, and sometimes over small areas, grazing, raking of leaves and any other operation which may result in erosion, landslides, disturbance of stream flow, etc. As a rule, the prescriptions are broad and general and there usually is no attempt to establish cutting rules. As much latitude is given the owner as is compatible with protection. Every assistance is given him by the state forests in applying the best methods of forestry, and often the state takes over entirely the management of certain private holdings within the protective belt.

The principle underlying the restriction of the private forests in a protection belt is that the state may prevent a private individual from so mishandling his property as to injure the property of others. The difficulty in carrying out these regulations is that it is usually impossible to prove that any single cutting does any damage. It is probable that isolated cuttings do not have any measurable influence on water flow. It is only in the case of extensive lumbering over large areas that injury can be shown. It would be necessary, therefore, to determine arbitrarily certain areas where it is believed that extensive deforestation would be detrimental to river flow or cause erosion, and designate these as Protection Forests as in Europe; then to regulate the cuttings upon the private holdings within this area, whether or not it could be shown conclusively that damage would be done by destructive lumbering on any given tract.

Granting that the state has a right to establish protective areas at the headwaters of rivers and to regulate private forests within them, the writer believes that it is a better policy for the state to purchase all those areas which must be kept under permanent forest cover for the public benefit. If there are interstate watersheds where a single state may not be expected to purchase because the protection would primarily be for the benefit of another state the Government should solve the problem by establishing national forests. In this way the burden of preserving the forests for the public benefit is placed upon the public, where it belongs, and not upon a single class of individuals.

In conclusion, it is the opinion of the writer that state regu-
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lation of private forests should be confined to restricting the use of fire and to requiring a reasonable organization of the forests for protection, and should not be extended to governing the methods of cutting; that the protection of watersheds should be accomplished by the establishment of public forests; and that the problem of the future timber supply may be solved effectively by means of the public forests supplemented by forestry practiced on private lands under state encouragement and co-operation.

CAN THE STATES REGULATE PRIVATE FORESTS?¹

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Inasmuch as the major share of the forest lands of the United States is and always will be privately owned, the question of the extent to which the state may regulate the cutting of private forests is one of first importance. The necessity for placing some limitation upon the destruction of timber upon private land is coming to be generally admitted, but there is much difference of opinion as to the extent to which the state may limit the property rights of the owner of forest lands. The purpose of this paper is to consider the legal questions connected with legislation by the states to provide for the public control of private forests.

Last year a bill was introduced into the legislature of Louisiana, the purpose of which was to "preserve and protect timber and lumber resources of the State of Louisiana, and to prohibit the felling, cutting down, girdling, or deadening of trees of a less diameter than twelve inches, measuring four feet from the base, whether upon public or private lands, and to make the same a misdemeanor, and provide for the punishment thereof on conviction." The reasons for the enactment of this measure, as stated in the preamble of the bill, were that "the wholesale and indiscriminate destruction of timber and trees in the State of Louisiana is rapidly tending to produce a dearth of timber and lumber, to the great prejudice and injury of the people of the whole state." Accordingly the bill stipulated that:

After the passage and promulgation of this act it shall be unlawful for any person or persons to fell or cut down or girdle or deaden any forest tree or trees other than fruit or willow trees, whether upon public or private lands, of a less diameter than twelve inches, measuring four feet from the base, provided always that this shall not apply to timber felled or cut down on privately owned lands for fencing or other domestic purposes, exclusively for the use of the owner of the land or his tenants; nor shall it apply to

¹The author requests the editor to state that while the main body of this paper, as is stated in the text, is from a brief prepared by Col. Zacharie, the earlier and later parts of the paper are the work of the editor.

the clearing of lands with the *bona fide* intention of erecting houses or of putting the land so cleared under cultivation, nor the making and cleaning up of ditches, nor for the purpose of creating public or private roads or other works of public utility.

Other provisions of the bill were intended to regulate the manner of cutting trees and to provide penalties for the violation of the act.

The question with which we are here concerned is, does Louisiana or do the other states have the power to pass a law containing provisions similar to those in the measure proposed in Louisiana? To answer this question it is necessary to consider the police powers of the several states. The draft of the bill prepared for the Louisiana legislature was accompanied by an argument as to the economic necessity for the enactment of the measure and as to legal competency of the state under its constitution and the general police powers to enforce the provisions of the proposed law. This brief, written by Harry P. Sneed, Esq., of the Louisiana bar, and the author, contains the following discussion of the police powers of the states as regards the government regulation of the use of private forests:

The police power of Louisiana and the other states has never been positively defined, nor its limits accurately fixed, but all the authorities seem to agree that it extends to the enactment of all reasonable laws and ordinances to protect the interests of the state and its people from injury. Although the generality of law authorities lay down the principle, that the private ownership of land or real estate extends the rights of the owner thereof *de profundis usque ad coelum* (from the depths of earth to the skies), yet they are all agreed that the principle *sic utere tuo ut non laedas alienum* (so use your own as not to injure the property of others), applies to the non-injury of other owners or of the public or the general interests of the state. So ordinances and laws have been sustained prescribing fire limits, building regulations in regard to height, ventilation, plumbing, security against fires, etc., in cities, although they interfered with the complete control or domination of the owner over his private property. [Prentice on Police Powers, p. 19, 448, section 442.] So in regard to fishery laws for the protection of fish, game and song-birds, although the fish may be in unnavigable waters, adjacent to the riparian properties, and the game and song-birds nested on land privately owned. All these laws being considered reasonable laws, controlling the use of private property in the interest of the general public. [Prentice, pp. 29, 42, 58, 59, 177, 347, 456. Freund on Police Power, p. 443, section 419.] So a statute of Indiana, prohibiting the waste of natural

gas by burning flambeaux, etc., was sustained. [Freund, p. 448, section 422, and other authorities cited in note, 47 N. E. 40; 49 N. E. 809; 130 Penn St. 235.] In 47 N. E. 20, the Supreme Court of Indiana said that the waste of natural gas by flambeaux, etc., militated against the rights of others and the general public and the statute prohibiting it was within the police power and was constitutional.

So in 49 N. E. 816, under the same statute the Supreme Court of Indiana said: "The object and policy of that inhibition is to prevent, if possible, the exhaustion of the storehouse of nature, wherein is deposited an element that ministers more to the comfort, happiness and well-being of society than any other of the bounties of the earth."

In *Georgia vs. Tennessee Copper Company*, 206 U. S. 230, there was a case presented of a Tennessee copper smelting company, just over the Georgia line, which it was claimed was by its fumes and smoke, etc., injuring property, soil and vegetation in Georgia, and an injunction was sought by the State of Georgia to prevent the injury to such property in the State of Georgia. The Supreme Court of the United States said: "It is a fair and reasonable demand on the part of the sovereign that the air over its territory should not be polluted on a great scale by sulphurous acid gas, that the forests on its mountains, be they better or worse, and whatever domestic destruction they have suffered, they should not be further destroyed or threatened by this act of persons beyond its control, that the crops and orchards on its hills should not be endangered from the same source. If any demand is to be enforced this must be, notwithstanding the hesitation that we might feel if the suit were between private parties, and the doubt whether for the injuries which they might be suffering to their property they should not be left to an action at law."

The brief filed in this case by the counsel for Georgia contains many citations of authorities bearing on this question, that is, that the State of Georgia is *parens patriae*, and as such has the right to control and prevent any injury to its citizens and property holders, even where the injury is inflicted by persons outside its limits. Associate Justice Holmes, the organ of the court, says on page 237: "This is a suit by a state for an injury to it in its capacity of quasi-sovereign. In that capacity the state has an interest independent of and behind the titles of its citizens, in all the earth and air within its domains. It has the last word as to whether its mountains shall be stripped of their forests and its inhabitants shall breathe pure air. It may have to pay individuals before it can utter the word, but with it remains the final power. The alleged damage to the state as a private owner is merely a make-weight, and we may lay on one side the dispute as to whether the destruction of forests has led to the gullyng of its roads."

In the well-reasoned opinion in the case of *Commonwealth vs. Tewsbury*, II Metc. 58, we find the following: "Some of these acts, especially those of modern date, and those which prohibit the owner of land from using his herbage either by mowing or grazing, do provide for a compensation to the owner for the damage which he may sustain under the restraints of the act,

but many of them do not so provide. It is extremely difficult to lay down any general rule, or draw a precise line between the cases where the restraint of the right of the owner is such that compensation ought to be provided, and where the regulation is such only as to prevent a particular use of the property from being a public nuisance."

In 7 Cushing, pages 85, 86, Chief Justice Shaw, acknowledged one of the ablest jurists, in a long and very able opinion, said: "We think it is a settled principle, growing out of the nature of well-ordered civil society, that every owner of property, however absolute and unqualified may be his title, holds it under the implied liability that his use may be so regulated that it shall not be injurious to the equal enjoyment of others having an equal right to the enjoyment of their property, nor injurious to the rights of the community. All property in this commonwealth, as well as that in the interior, as that bordering on tidewaters, is derived directly or indirectly from the government and held to those general regulations, which are necessary to the common good and general welfare. Rights of property, like all other social and conventional rights, are subject to such reasonable limitations in their enjoyment as will prevent their being injurious, and to such reasonable restraints and regulations established by law as the legislature, under the governing and controlling power vested in them by the constitution, may think necessary and expedient." And, on pages 95 and 96, he says: "Wherever there is a general right on the part of the public, a general duty on the part of the land owner, or any other person to respect such right, we think it is competent for the legislature, by a specific enactment, to prescribe a precise practical rule for declaring, establishing and securing respect for it. It may be said in general terms, independently of any positive enactment, that it is the right of society in the midst of a populous settlement to be exempt from the proximity of dangerous and noxious trades, and that it is the duty of the owner of real estate, in the midst of many habitations, to abstain from erecting buildings thereon, or otherwise using it for carrying on a trade dangerous to lives, health or comfort of the inhabitants of such dwellings, although a trade in itself beneficial and useful to the public.

"But such general duty and obligation not being fixed by a rule precise enough for practical purposes, we think it competent for the legislature to interpose, and by a specific enactment to declare what shall be a dangerous and noxious trade, under what circumstances and within what distance of habitations it may or shall not be set up, how the use of it shall be regulated and to prohibit any other than such regulated use by specific penalties."

So Freund, section 619, page 641, speaks of regulations of cutting of forests to prevent injuries from floods, and cites *Commonwealth vs. Tewsbury*, II Metc. 55, in which the question arose as to the right to prohibit by statute a proprietor of private land from removing gravel, stone or sand from the sea front of his property as liable to produce overflow from the sea, and the statute was sustained.

So in 7 Cushing, 55, the same statute was sustained, and on page 57 the Supreme Court of Massachusetts said: "All property is acquired and held

under the tacit condition that it shall not so be used as to injure the equal rights of others or to destroy or greatly impair the public rights and interests of the community, under the maxim of the common law *sic utere tuo ut alienum non laedas*."

Prentice on Police Power says on page 88: "Incidentally the game laws have aided the great reform of preventing not only the destruction of forests but also the pollution of streams." [Control of Private Property for Public Interest, see Prentice, pages 29, 42, 58, 89, 177, 347 and 456.]

"In this country it would probably be a strong consideration against legislation prescribing the principles of observance or principles of forestry in the management of private forests that there is no analogy or precedent for it, unless it can be shown that the supply of forest land was limited, and in danger of exhaustion, and that the regulation was not destructive to the lands of the owner." [Freund on Police Power, section 433, page 499.]

"Forests which are essential to the physical protection of the country may be regarded as subject to a natural easement for that purpose, and the person who acquires them takes them *cum onere*." [Freund, section 423, page 450.]

The legal questions here under consideration were brought directly and specifically before the Supreme Court of the State of Maine by a resolution adopted by the senate of that state, March 27, 1907. The senate desired to know whether the legislature had the power, under the constitution of the state, to take measures for preventing or diminishing injurious droughts and freshets, for protecting the natural water supply of the springs, streams, ponds and lakes of the state, and for diminishing injurious erosions of the land and the filling up of streams and lakes, by adopting laws intended to accomplish the following results:²

1. To regulate or restrict the cutting or destruction of trees growing on wild or uncultivated land by the owner thereof without compensation thereof to such owner;

2. To prohibit, restrict or regulate the wanton, wasteful or unnecessary cutting or destruction of small trees growing on any wild or uncultivated land by the owner thereof, without compensation therefor to such owner, in case such small trees are of equal or greater actual value standing and remaining for their future growth than for immediate cutting, and such trees are not intended or sought to be cut for the purpose of clearing and improving such land for use or occupation in agriculture, mining, quarrying, manufacturing, or business, or for pleasure purposes, or for a building site; or

3. In such manner to regulate or restrict the cutting or destruction of trees growing on wild or uncultivated lands by the owners thereof as to preserve or enhance the value of such lands and trees thereon, and protect

²103 Maine reports, 507.

and promote the interests of such owners and the common welfare of the people.

On the 10th of March, 1908, the Maine Supreme Court replied to the request of the senate by an advisory opinion in which the court held that^a

The legislature of Maine has by the constitution of Maine full power to make and establish all reasonable laws and regulations for the defense and benefit of the people of this state, not repugnant to this constitution, nor that of the United States.

It is for the legislature to determine from time to time the occasion and what laws and regulations are necessary or expedient for the defense and benefit of the people; and, however inconvenienced, restricted or even damaged, particular persons and corporations may be, such general laws and regulations are to be held valid, unless there can be pointed out some provision in the state or United States constitution, which clearly prohibits them.

Legislation to restrict or regulate the cutting of trees on wild or uncultivated land by the owner thereof, etc., without compensation therefor to such owner, in order to prevent or diminish injurious droughts and freshets, and to protect, preserve and maintain the natural water supply of springs, streams, ponds and lakes, etc., and to prevent or diminish injurious erosion of the land and the filling up of the rivers, ponds and lakes, etc., would not operate to "take" private property within the inhibition of the constitution.

While such legislation might restrict the owner of wild and uncultivated lands in his use of them, might delay his taking some of the product, might defer his anticipated profits and even thereby might cause him some loss of profit, it would nevertheless leave him his lands, their product and increase, untouched and without diminution of title, estate or quantity. He would still have large measure of control and large opportunity to realize values. He might suffer delay but not deprivation. While the use might be restricted, it would not be appropriated or "taken." Such legislation would be within the legislative power and would not operate as a taking of private property for which compensation must be made.

Thus the Supreme Court of Maine holds that its state unquestionably has the power to regulate the cutting and use of timber upon lands privately owned.

The legal principles enunciated in this decision of the Supreme Court of Maine are further elucidated by a decision of the United States Supreme Court, rendered upon the 6th of April, 1908. The case before the United States Court was one brought before it

^a103 Maine reports, 508.

upon an appeal from the decision of the Court of Errors and Appeals of the State of New Jersey. In 1905, New Jersey passed a law enacting that

It shall be unlawful for any person or corporation to transport or carry through pipes, conduits, ditches or canals, the waters of any fresh water lake, pond, brook, creek, river or stream of this state into any other state for use therein.

After the passage of this law the owners of land upon the Passaic River, New Jersey, made a contract with the City of New York to furnish a supply of water adequate for the needs of the Borough of Richmond. The carrying out of this contract was prohibited by an injunction issued by the Chancellor of the State⁴ which injunction was affirmed by the Court of Errors and Appeals,⁵ from which court the case was brought before the United States Supreme Court. This court of final appeal, in an opinion delivered by Mr. Justice Holmes, again affirmed the injunction and thus held the New Jersey statute to be valid.

Although the question before the court in this New Jersey case involved the right to use the waters of the state, the principles upon which Justice Holmes based his decision are as applicable to the government regulation of privately owned forests as to the use of waters of the state. The learned justice stated in the decision that⁶

The boundary line between private rights of property which can only be limited on compensation by the exercise of eminent domain, and the police power of the state which can limit such rights for the public interest, cannot be determined by any formula in advance, but points in that line helping to establish it had been fixed by decisions of the court that concrete cases fall on the nearer or farther side thereof.

The state, as *quasi*-sovereign and representative of the interests of the public, has a standing in court to protect the atmosphere, the water and the forests within its territory, irrespective of the assent or dissent of the private owners immediately concerned. *Kansas vs. Colorado*, 185 U. S. 125; *Georgia vs. Tennessee Copper Co.*, 206 U. S. 230.

The public interest is omnipresent wherever there is a state, and grows more pressing as population grows, and is paramount to private property of riparian proprietors

⁴78 N. J. Eq. 525.

⁵70 N. J. Eq. 695.

⁶209 U. S. 349.

A state has a constitutional power to insist that its natural advantages remain unimpaired by its citizens and is not dependent upon any reason for its will so to do.

The extent of the powers possessed by the states for the regulation of privately owned forests cannot as yet be said to have been definitely determined. The foregoing analysis clearly indicates that the state and federal courts are disposed to interpret the powers of the states liberally, and it seems probable that the constitution of the federal government and the constitutions of the states will be held to permit the states to take such measures for the protection of their forests and the conservation of their other natural resources as may be demanded by present economic needs and as may be required in the interest of the future welfare of society. If this conclusion be correct, the government regulation of private forests may be considered to be primarily a question of expediency and not of constitutional law.

PART TWO

Water Resources and Water Power

WATER AS A RESOURCE

BY W. J. McGEE, LL.D.,

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CONSERVATION COMMISSION, WASHINGTON, D. C.**

WATER POWER IN THE UNITED STATES

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D. C.**

**THE SCOPE OF STATE AND FEDERAL LEGISLATION CONCERN-
ING THE USE OF WATERS**

BY CHARLES EDWARD WRIGHT,

ASSISTANT ATTORNEY TO THE SECRETARY OF THE INTERIOR, WASHINGTON, D. C.

**NECESSITY FOR STATE OR FEDERAL REGULATION OF WATER
POWER DEVELOPMENT**

BY CHARLES WHITING BAKER, C.E.,

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FEDERAL CONTROL OF WATER POWER IN SWITZERLAND

BY TREADWELL CLEVELAND, JR.,

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WATER AS A RESOURCE

BY W. J. MCGEE, LL. D.,

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Current Tendencies

This is an age of science and ours a nation of science. Observation has matured in measurement and passed from the qualitative to the quantitative, generalization is a habit, and prevision has become a commonplace in current life. More than all else, the course of nature has come to be investigated in order that it may be re-directed along lines contributing to human welfare; invention has become a step toward creation, and is extending far beyond the merely mechanical and into the realms of the chemical and even the vital. Now is the time of conquest over nature in practical sense, of panurgy in philosophic sense—the day of prophecy made perfect in predetermined accomplishment.

Our country is growing rapidly. The rate varies along different lines. Our growth in agricultural production is unprecedented in the world's history; our growth in population is so much more rapid that exportation of food-stuffs is declining; our growth in mining outruns our increase in population; our growth in manufacturing far exceeds that in mining, and our growth in application of mechanical power is much more rapid than our advance in manufacturing. Along one line only is our growth more rapid than in the use of power—*i. e.*, in that knowledge and mental capacity required to guide and develop the material progress.

Our rate of mental growth is not easily measured in that its manifestations are manifold. In 1905 it was pointed out that along the single line of university development the rate of advance is geometric—that during the first half of the nineteenth century our university strength measured in endowments, or faculties, or students, or alumni, or all combined doubled; that during the next quarter-century it doubled again; that from 1875 to 1890 it doubled again; that in the next decade it once more doubled, and that within

the first seven years of the present century it would inevitably double again. Naturally such whelming growth can not continue indefinitely on any line; yet the advance can and does continue, largely by the development of new lines or by multiplication of the old, so patently that it is safe to characterize our progress in knowledge and mental power as geometric.

Our growth in knowledge of that definite character called science is notable—particularly in its ever-multiplying applications. Twenty-five years ago the writer compiled a geologic map of the United States, the first based wholly on observation and not at all on inference, and although a quarter of the area was left blank, it was complete enough for publication;¹ a year later he compiled the first map showing the distribution of coal in the United States, which was fairly complete for two-thirds of our area yet so incomplete for the remaining third as not to be deemed worthy of publication. The facts that to-day any geologic map may be made substantially complete, and that our coal deposits have been surveyed not only as to area but as to volume, strikingly illustrate the rapidity and sureness of our progress in practical knowledge.

With the growth of science, its field has extended and its agencies have multiplied. When the Federal Geological Survey was started and the State surveys were reinvigorated only three decades ago, they stood almost alone for the development of the natural resources, aside from the land reckoned in area merely. Now the surveys have grown; an entire Federal Department and corresponding State instrumentalities have come up on the basis of resources comprising the land and its products and potentialities, a wide range of minerals, the forests which protect the streams, and of late the water itself. It is in harmony with the general development that the quantitative method is now applied not only to soil production in forests and crops, and to mine production and minerals in the ground, but finally to the rains and rivers which render the land habitable and the ground waters which render it fruitful.

No more significant advance has been made in our history than that of the last year or two in which our waters have come to be considered as a resource—one definitely limited in quantity, yet

¹It appeared under the title "Map of the United States exhibiting the present status of knowledge of the geological groups." Fifth Annual Report of the U. S. Geological Survey, 1885 (pages 36-38, plate II).

susceptible of conservation and of increased beneficence through wise utilization. The conquest of nature, which began with progressive control of the soil and its products and passed to the minerals, is now extending to the waters on, above and beneath the surface. The conquest will not be complete until these waters are brought under complete control.

Units of Measure

The quantitative view of water, except in smaller measures, is so new to thought that familiar units are lacking. Municipal water supply is generally expressed in gallons, irrigation water in acre-feet, stream flow in second-feet, or more accurately seconds-feet, and water for certain uses in the variable and indefinite miners'-inch. There is urgent need of a unit applicable to the quantities commonly used for water supply, irrigation and various other purposes. Moderate familiarity with the metric system would render convenient as such a unit the stere, equivalent to the kiloliter or cubit meter, the virtual basis of the metric system for volume or tridimensional measure, which roughly approximates—like the liter the quart—the cubic yard in quantity and the ton in weight of water, while the kilostere approximates 1000 tons and an acre-foot. The kilostere is especially convenient in discussing the water supply of the United States in that it permits expression of the leading values in round numbers not too large for ready comprehension—the mean rainfall totaling six billion (6,000,000,000) kilosteres, and its main derivative fractions being expressible in sixths of this total.²

Pending adoption of the metric unit, and as a glaring illustration of the need, it is necessary to employ either the cubic foot or the cubic mile in dealing quantitatively with our water supply—preferably the former for the supply of a country, the latter for the

²A few of the equivalents involved in the use of the stere follow:

1 liter equals 0.26 gal., 61.02 cu. in., 2.2 lbs.

1 stere equals 1000 liters, 1 kiloliter, 1 cubic meter, 264.17 gals., 35.31 cu. ft., 2204.62 lbs..

1 kilostere equals 1000 kiloliters, 264,170 gals., 35,314 cu. ft., 0.81 acre-foot, 1102.8 tons.

1 gal. equals 3.785 liters, 0.134 cu. ft., 231 cu. in., 8.313 lbs.

1 cu. ft. equals 28.32 liters, 0.028 kiloliters, 7.48 gals., 62.43 lbs.

1 cu. mi. equals 147,197,952,000 cu. ft., 4,168,207 kilosteres, 3,379,165 acre-feet 4,594,656,258 tons.

1 ton equals 907 liters, 0.907 kiloliter, 240 gals., 32 cu. ft. 2000 lbs.

1 lb. equals 0.45 liter, 0.12 gal., 27.7 cu. in.

water of the world; and it is desirable to crystallize the quantitative concept by using the units interchangeably and coupling both with the metric system.

OUR STOCK OF WATER

The World Supply

The water of the world (or hydrosphere) is about 1/600 of the globe, or some 410,000,000 cubic miles. Nearly three-quarters occupies depressions in the earth-crust as seas; about a quarter, or some 100,000,000 cubic miles, permeates earth and rocks as ground water; the remaining small fraction is gathered in fresh-water lakes and channels, accumulated in snow and ice, or distributed in the atmosphere as aqueous vapor.

The mean annual precipitation is about 30,000 cubic miles $\pm 4,400,000,000,000,000$ cubic feet $\pm 125,000,000,000$ kilosteres $\pm 100,000,000,000$ acre-feet over the lands of the globe, and 90,000 cubic miles on the oceans—in all, 120,000 cubic miles $\pm 17,600,000,000,000,000$ cubic feet $\pm 500,000,000,000$ kilosteres $\pm 400,000,000,000$ acre-feet.

The vapor in the atmosphere tempers the climate; without it the globe would be uninhabitable. The average quantity is probably much less than the mean annual precipitation.

The sole source of the fresh waters of the world is the precipitation, mainly in rain, partly in snow, slightly in mist and fog; without it the lands would be barren, the earth a dead planet.

The most active part of the world's water is the small fraction forming streams; these, with some help from glacier ice, have sculptured nearly all of the land surface of the globe, collected materials for the geologic formations, and shaped the continents—running water being by far the most important earth-building agency.

The most effective portion of the water in the organic world is the minute fraction circulating through structures and maintaining the vital processes—for water is the primal constituent and primordial source of living things.

National Supply

The mean annual precipitation on the territory of mainland United States is about 30 inches; the quantity falling on the land

with the included water areas is about two hundred and fifteen trillion (215,000,000,000,000 cubic feet \pm 1500 cubic miles \pm 6,000,000,000 kilosteres \pm 4,800,000,000 acre feet. It is equivalent to ten Mississippi rivers. From this source all our running, standing and ground waters are derived.

The yearly rainfall on the more humid two-fifths of the country east of the ninety-fifth meridian, or what may be called the state divide forming the eastern boundary of the five median states—North Dakota, South Dakota, Nebraska, Oklahoma and Texas, is nearly 48 inches; the quantity about 140,000,000,000,000 cubic feet \pm 1000 cubic miles \pm 4,000,000,000 kilosteres. On the semi-arid fifth of our area in these median states, or between the ninety-fifth and hundred and third meridians, the rainfall averages 30 inches and aggregates some 40,000,000,000,000 cubic feet. The rainfall on the western two-fifths of the country, including our arid lands, averages about 12 inches, or about 35,000,000,000,000 cubic feet \pm 250 cubic miles \pm 1,000,000,000 kilosteres.

Of the total rainfall, over half is evaporated; about a third flows into the sea; the remaining sixth is either consumed or absorbed. These divisions, which may be called respectively the fly-off, the run-off, and the cut-off are partly interchangeable. About a third of the run-off, or a tenth of the entire rainfall, passes through the Mississippi. The run-off is increasing with cultivation and deforestation; that of the Mississippi has increased from some 19,500,000,000,000 cubic feet as measured by Humphreys and Abbott fifty years ago to over 22,000,000,000,000 cubic feet as recently gauged by Leighton. It is wholly within reach of human control.

The 110,000,000,000,000 cubic feet (3,000,000,000 kilosteres) of fly-off affects agriculture and other industries largely through climate. Except in moderate degree through scientific agriculture and forestry, it is beyond artificial control.

The 70,000,000,000,000 cubic feet (2,000,000,000 kilosteres) of run-off is available for water supply, irrigation, navigation and power. It is controlled in small part, and may be wholly controlled by proper means.

The remainder of the rainfall (the 35,000,000,000,000 cubic feet or 1,000,000,000 kilosteres of cut-off) is either consumed in plant growth and other chemical combinations, or else permeates the deeper strata and passes subterraneously into the sea. It is

partly controlled, chiefly through farming and forestry, and the control may be much increased.

OUR USE AND WASTE OF WATER

The Fly-off

Of the hundred and ten trillion (110,000,000,000,000) cubic feet ± 750 cubic miles $\pm 3,000,000,000$ kilosteres of water annually evaporated in mainland United States, incidental use is made through the settlement and industrial development depending on the presence of aqueous vapor in the atmosphere. Much of it is re-precipitated, generally after an easterly movement; perhaps half of the vapor content of the air, and the precipitation, *e. g.*, at St. Louis is derived from the Pacific primarily and from original precipitation and evaporation within the arid and semi-arid regions secondarily; the other moiety coming from the Gulf of Mexico. Neither the quantity nor the relations of the fly-off are known accurately; systematic observations and records of evaporation in different regions and under varying conditions have only recently been undertaken by the Weather Bureau. Evaporation is rapid from trees and many crop plants by reason of transpiration. Probably it is less rapid from water surfaces and still less from grass lands or bare earth and rock, in which the water is held by molecular attraction and surface tension. Recent investigations in the Forest Service and the Hydrographic Branch of the Geological Survey render it clear that deforestation, *e. g.*, in the Ohio Valley, is followed by diminished precipitation, doubtless by reason of reduced sub-local evaporation, *i. e.*, that the aqueous vapor and circulation are interdependent with surface conditions and hence measurably subject to control. The fly-off is adapted to largely increased population and industries.

The Run-off

Of the seventy trillion (70,000,000,000,000) cubic feet ± 500 cubic miles $\pm 2,000,000,000$ kilosteres annually flowing into the sea, little more than 100,000,000,000 cubic feet $\pm 2,800,000$ kilosteres, or one-seventh of one per cent., is taken from rivers and lakes and protected catchment areas for municipal and community supply and related purposes; less than two per cent., or some ten per cent. of that in the arid and semi-arid regions, is used for irrigation; per-

haps five per cent. may be reckoned as in small use for navigation; and less than five per cent. is utilized for power. It is estimated that eighty-five per cent. to ninety-five per cent. of the volume is wasted in freshets or destructive floods.

It is reckoned by M. O. Leighton, Chief of the Hydrographic Branch of the Geological Survey, that for municipal and community water supply there are protected catchment areas aggregating over 1,000,000 acres, and that fully \$250,000,000 are invested in water-works with nearly as much more in the appurtenant catchment areas and other lands. The population so supplied approaches 10,000,000; the annual consumption is about 37,500,000,000 cubic feet \pm 1,000,000 kilosteres, or one-twentieth of one per cent. of our run-off. The better managed systems protect the catchment areas by forests or grass; the water is completely controlled, the storm product is stored, and there is little waste save through over-lavish use after the impounded flow enters the mains.

For irrigation it is estimated by Director Newell, of the Reclamation Service, that there are \$200,000,000 invested in dams, ditches, reservoirs and other works for the partial control of the waters, in addition to the value of the land which is virtually fixed by the availability of the water; and that 1,500,000,000,000 cubic feet \pm 42,000,000 kilosteres—*i. e.*, three-quarters of one per cent. of our total rainfall, or two per cent. of that on the western two-fifths of our area—are annually diverted to irrigable lands aggregating some 13,000,000 acres. Except in some cases through forestry, there is little effort to control the catchment areas, and few reservoirs are large enough to hold the storm waters; so that the waste in public and private projects exceeds sixty per cent., while less than twenty-eight per cent. of the water actually available for irrigation of the arid lands is restrained and diverted.

There are in mainland United States 287 streams navigated for an aggregate of 26,226 miles,³ and about an equal additional mileage might be made navigable by waterway improvement; there are also forty-five canals with a mileage of 2189, besides numerous abandoned canals.⁴ On lake and sound routes there is a large traffic, but the navigation of rivers and canals is too small for definite record. Several hundred million dollars have been expended on

³Preliminary Report of the Inland Waterways Commission, 1909. Herbert Knox Smith, on "Navigable Streams of the United States," page 35.

⁴*Ibid.* Herbert Knox Smith, on "Canals in the United States," page 190.

special projects, yet "in spite of large appropriations for their improvement, our rivers are less serviceable for interstate commerce to-day than they were half a century ago."⁸ The cost of water carriage averaging about one-fourth that of rail carriage, and our railway freightage during 1906 reaching 217,000,000,000 ton-miles at an average rate of 0.77 cent, the shipping of one-fifth of our freight by water would have saved over \$250,000,000 to our producers and consumers. Except through forestry in recent years, together with a few reservoirs and canal locks and movable dams, there has been little effort to control headwaters or catchment areas in the interests of navigation; and none of our rivers are navigated to more than a small fraction even of their effective low-water capacity.

The theoretical power of the streams is reckoned by Leighton at 230,000,000 horse power. The amount now used is computed by the Census Office at 5,230,000 horse power, and the amount running over Government dams and not used is estimated by the Chief of Engineers at about 1,400,000 horse power. The amount now available at a cost comparable with that of steam installation is estimated by the Hydrographic Branch of the Geological Survey at 37,000,000 horse power, and the amount prospectively available at 75,000,000 to 150,000,000 horse power. The 37,000,000 horse power to-day available exceeds our entire mechanical power now in use, and would operate every mill, drive every spindle, propel every train and boat, and light every city, town and village in the country. The nominal value is \$20 per horse-power year; the price ranges up to \$100 or \$150. While the utilization of water power ranks among our most recent and most rapid industrial developments, little effort has been made to control catchment areas or storm waters in any large way for power development; though most plants effect local control through reservoirs and structures. Nearly all of the freshet and flood water runs to waste, and the low waters which limit the efficiency of power plants are increasing in frequency and duration with the increasing flood run-off.

The practical utility of streams for both navigation and power is measured by the effective low-water stage; the volume carried when the streams rise above this stage, seventy-five to ninety per

⁸Preliminary Report of the Inland Waterways Commission, 1909. "Message of the President," page vi.

cent. of the run-off, is not only wasted, but does serious damage. The direct yearly damage by floods since 1900, as computed by Leighton, has increased steadily from \$45,000,000 to \$238,000,000; the indirect loss through depreciation of property is probably greater; while the largest loss is that arising in impeded navigation and terminal transfers.

The freshets are attended by destructive soil erosion. The soil matter annually carried into lower rivers and harbors or into the sea has recently been reckoned by Dole and Stabler at 783,000,000 tons. Its removal seriously reduces the productivity of upland farms and increases channel-cutting and bar-building in the rivers. It is estimated that soil erosion reduces farm production ten to twenty per cent., that annual loss to farms alone is \$500,000,000, and that large losses follow the fouling of the waters and the diminished navigability of the streams.

Through imperfect control of the running waters, lowlands are temporarily or permanently flooded. It is estimated that there are in mainland United States 75,000,000 to 80,000,000 acres of overflow and swamp lands requiring drainage; that by systematic operations these might be drained and the water made available at moderate expense; and that they would then be worth two or three times the present value and cost of drainage, and would furnish homes for 10,000,000 inhabitants.

A part of the run-off lodges temporarily in lakes and ponds. It is estimated that the quantity of fresh water so stored, including the American portion of the Great Lakes, is about 600,000,000,000,000 cubic feet \pm 45,000 cubic miles \pm 28,000,000,000 kilosteres, equivalent to three years' rainfall or nine years' run-off. The natural reservoirs yield a water supply ordinarily requiring no control of catchment area. Some 6,000,000 of our people draw their water supply from lakes. All the larger and deeper lakes are navigated; they serve the chief part of our inland commerce by water.

The Cut-off

Of the thirty-five trillion (35,000,000,000,000) cubic feet \pm 250 cubic miles \pm 1,000,000,000 kilosteres of cut-off, the chief share is absorbed by soil and earth or consumed by natural processes or through agriculture and related industries; yet most of it returns to the original supply by natural circulation.

On an average the plant tissue of annual growths is three-fourths and of perennial growths three-eighths water; of human and stock food over eighty per cent. is water, and in animal tissue the ratio is about the same; and is the chief vehicle for the transmission of enteric and many other diseases. Since water is the essential circulatory medium in organic bodies, the plants and animals of the country yearly require an amount many times exceeding their aggregate volume; the average man of 150 pounds ingests over a ton (900 liters, thirty-two cubic feet, or thirteen times his volume) of water each year, and an average bushel of corn requires over 700 cubic feet (twenty kiloliters or twenty-two tons) of water in the making—of which the larger part is evaporated. Even in the more humid sections of the country, the productivity of the soil and the possible human population would be much larger if the rainfall were greater, leaving a wider margin for organic and other chemical uses. Except through irrigation, little general effort is made to control the natural circulation, though some farmers in arid regions claim to double or triple the crop from given soil by supplying water just when needed and withholding it when not required.

The greater part of the cut-off lodges temporarily in the soil and earth as ground water. According to texture, fire-dry rocks contain one to three per cent., air-dry rocks five to twenty-five per cent., and saturated rocks and earths ten to forty per cent. of water, while the optimum moisture for plant growth in top-soil ranges from four to twenty per cent.; and it is estimated that the ground water to the depth of 100 feet in which it is available for hand pumps and capillarity and deep-rooted trees averages five per cent. over 1,000,000 square miles, twenty per cent. over another third of the country, and twenty-five per cent. over the remaining third—a mean of $16 \frac{2}{3}$ per cent. This ground water may be conceived as a sub-surface reservoir 3,000,000 square miles in area and nearly seventeen feet deep, containing over 1,400,000,000,000 cubic feet $\pm 100,000$ cubic miles $\pm 40,000,000,000$ kilosteres, equivalent to seven years' rainfall or twenty years' run-off. It is the essential basis of agriculture and most other industries, and the chief natural resource of the country; it sustains forests and all other crops, and supplies the perennial streams and springs and wells used by four-fifths of our population and nearly all our domestic animals. Its quantity is diminished by the increased run-off due to deforestation

and injudicious farming. Throughout the upland portions of eastern United States the average water-table has been lowered ten to forty feet, so that fully three-fourths of the springs and shallower wells have failed and many brooks have run dry, while the risk of crop loss by drought has proportionately increased, and the waste through the Mississippi has increased over fifteen per cent. Although the available ground water is subject to control by such treatment of soil and plant growth as to prevent freshets, little effort has been made to retain it or increase its volume, and it is probable that fully ten per cent. of rich resource has been allowed to drain away since settlement began. The water of the deeper rocks below 100 feet supplies artesian and other deep wells, most thermal and mineral waters, and many large springs; it may be controlled in part through the sub-surface reservoir, and might be much better utilized.

In both ground and organisms the water, except when frozen, is in constant movement. In the soil it moves under gravity and capillarity, dissolves earth-salts and conveys them into and through the circulatory systems of living plants, and then carries the katabates of growth and decay into the air or back into the earth matter to hasten its solution. Some of the organic derivatives are excretory and poisonous to the plants yielding them or to others, but many of them set up destructive decompositions yielding elements of fertility, such as nitrogen and potassium and phosphorus compounds, serving to sustain later generations of plants; some of the earth-salts, such as calcium compounds, carried by the circulating waters promote the flocculation of particles and the friability of the soils on which plant growth depends; so that the primary law of the soil is one of cumulative enrichments through interaction of the floras and faunas by means of the aqueous circulation.

In plants the irregular circulation and in animals the regular circulation are maintained chiefly by transpiration and respiration, respectively, *i. e.*, by the passage of the water from liquid to vapor—and there is neither metabolism nor germination, nor any other essentially vital action, in the absence of water as the fundamental circulatory medium. The circulation extends from the organism into the air above and the soil below, with a degree of energy measured by evaporation, condensation, latency and affinity; and the locus of most effective energizing on the planet is the infinitely complex surface of the soil with its component particles and its extensions

in living organisms at which water is continually passing from one form to another in endless circulatory progression. This surface—the chief theater of organic activity—is subject to human control, partly through management of the soil, partly through selection and modification of the organisms, chiefly through regulation of the movements of the water derived from the rains and lodged in the sub-surface reservoir. Through control of this surface our entire water supply may be saved and applied to beneficial uses.

Our Most Urgent Needs

Our stock of water is like other resources in that its quantity is fixed. It differs from such mineral resources as coal and iron, which once used are gone forever, in that the supply is perpetual; and it differs from such resources as soils and forests, which are capable of renewal or increase, provided the supply of water suffices, in that its quantity can not be augmented. It differs also in that its relative quantity is too small to permit full development of other resources and of the population and industries depending on them. Like all other resources, it may be better utilized. It must be better utilized in order to derive full benefit from lands and forests and mines.

Although our rainfall of 215,000,000,000,000 cubic feet is 2,500,000 cubic feet per capita for a population of 86,000,000, or 250,000 cubic feet, allowing for the ninety per cent. waste, our growth in population and industries is seriously retarded by dearth and misuse of water. Fully a third of our territory, 1,000,000 square miles, the area of Great Britain, Germany, France, Spain, Portugal, Italy, Austria and Denmark combined, remains practically unoccupied and nearly unproductive by reason of aridity; while the public lands sufficiently humid for agricultural settlement are taken, the cost of transportation is limiting production, and our citizens are emigrating in thousands to other countries. With half our land area and the same water, our capacity for population and industries would be as great as now; with twice our water equally distributed over our present land, our capacity would be more than doubled.

Hitherto water has seldom been regarded as a resource to be exploited and conserved; it has been viewed vaguely as a prime necessity, yet merely as a natural incident or providential blessing. In its assumed plentitude the idea of quantity has seldom arisen

though the waste is least in those arid regions in which customs are better adjusted to the values and inter-relations of water. Under the English common-law prevailing in eastern United States, the water is held appurtenant to the land; under the Code Napoleon prevailing in Louisiana, it virtually appertains to the community; under the Spanish-Roman law prevailing in western United States, water is subject to prior appropriation and beneficial use, and hence appertains primarily to the individual or family, while the land is essentially appurtenant to the water traversing it. Some States recognize a residuary right of the people in the natural waters, or in the headwaters of streams used for water supply or navigation, and this recognition seems to be extending over the country; but the usage of the different sections is not uniform, the exercise of the right of the people generally varying with the aridity of the land or the density of the population.

In considering the benefits to be derived from the 215,000,000,000,000 cubic feet of water annually received, the paramount use should be that of water supply; next should follow navigation in humid regions and irrigation in arid regions. The utilization of power from the navigable and source streams should be kept subordinate to the primary and secondary uses of the waters; though other things equal, power development should be encouraged, not only to reduce the drain on other resources, but because properly designed reservoirs and power plants retard the run-off and so aid in the control of the streams for navigation and other uses.

It has been roughly estimated that the inland waterways of the country could be improved in ten years at a cost of \$50,000,000 annually in such manner as to promote interstate commerce and at the same time greatly reduce the waste and extend the use of the waters. If done at the cost of the people, the burden would be \$0.62½ per capita per year, or \$6.25 in all, for a population of 80,000,000.

It is roughly estimated that the direct benefits would comprise an annual saving in transportation of \$250,000,000; an annual saving in flood damage of \$150,000,000; an average annual saving in forest fires of at least \$25,000,000; an annual benefit through cheapened power of fully \$75,000,000; and an annual saving in soil erosion or corresponding benefit through increased farm production of \$500,000,000—a total of \$1,000,000,000, or \$12.50 per

capita annually, *i. e.*, twenty times the cost. In addition, large benefits would result from extended irrigation, from the drainage and settlement of swamp and overflow land, and from purified and cheapened water supply with consequent diminution of disease and saving of human life.

It is estimated that the income derived from power developed by works for the improvement of navigation, if utilized at current market rates in co-operation with states and citizens, would alone compensate the entire cost of maintenance and continued development after the initial expenditure of \$500,000,000 as a working capital.

WATER POWER IN THE UNITED STATES

BY M. O. LEIGHTON,

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The people of the United States must give up their leadership in the productive world when they shall have placed in use all their sources of cheap mechanical energy.

Present-day leadership in the productive world must be based on energy. This energy must, in the first place, be an inherent quality of the people and, in the second place, there must be an abundant external supply which the people can harness and subdue. Whatever amount of the one there may be, there can be no leadership of long standing without a fully proportional amount of the other. The converse is quite as true. The American people possess limitless inherent energy; therefore their industrial progress must be dependent upon the amount of external power that they can command. This progress can continue up to a point at which the cheap power is all placed in use. Thereafter the best that our people can do is to hold fast. But such a condition is unstable. Some other people making skillful and energetic use of a larger amount of power would not only take the leadership but, in conformity with the scriptural "Parable of the Talents," they would by virtue of their larger possession take from our people that which they already have. It is a faithful saying that a halt in progress marks the beginning of a backward movement.

The finding out of what kind and of how much mechanical energy there is ready for use in this country is the first step in shaping our future industrial expectations. The process of the finding therefore becomes one of our most important matters of public duty. If our promised needs for mechanical energy bid fair in the near future to consume or to utilize all our sources of power, then will it be a part of wisdom to approach that crisis with our eyes open. On the other hand if our sources are so vast that the end may not be reached for many generations, then our problem is reduced to a wise selection of the best and most economical use of that which we have.

Two main points should be borne in mind: First, that we shall make full use of the kind of power that will finally be the cheapest; second, that we shall be as miserly in the use of our sources of energy that become impoverished in the using as is consistent with final efficiency and purposeful results. The mere possession of great sources of mechanical energy will not insure industrial leadership. Each source must be properly harnessed. Having done this, it behooves us to have a care that we do not habitually burden our family driving horse with a load adapted to a percheron.

Leadership in the productive world may depend upon the wisdom with which the sources of mechanical energy are chosen, quite as much as upon the skill with which that energy is used.

As one generation follows another and leaves no gap between, so the methods and the tools of the one, being cheaper or more effective or less destructive than those of the other, gradually drive them from the field. It is necessary in the use of mechanical energy to choose that which is cheapest and most effective. It would be of little use for the people of one country to possess and to use a certain source of energy, be it ever so abundant, if that energy were not as efficient or were more costly than that used by the people of another country. Such a situation would merely suggest the comparison of two artisans, one of whom uses poor and the other good tools. If the people of this country persist in using a costly form of energy, which by the very use thereof hastens the final impoverishment of the available supply, they can not expect always to compete with the people of any other country who use a cheap and effective agent of mechanical power, which, moreover, is not impoverished.

The United States is using over 26,000,000 horse power produced by fuel and principally by the use of coal in steam boilers. Utmost ingenuity has been practiced by the engineering profession in the improvement of methods of steam production and utilization. The cost of installing a steam plant is comparatively small—far less than the first cost of a water-power plant of similar capacity. Moreover, it is easy and convenient to set up a steam power unit well suited to the transient demands and there is a certain satisfaction in the completeness and independence that it affords. Until yesterday or the day before, the steam plant was practically the

only agent of power that could be the resort except in unusual and often inconvenient localities. All of these as well as sundry other considerations developed in the power user the steam boiler habit. This was but natural. The man who sought to establish himself in a manufacturing business wished to place himself on a profitable operating basis at the earliest possible time. He chose the cheaper power installations as a first investment, trusting that the profits of the business would justify him, even though his subsequent expenses of maintenance were higher than they would have been with water power. In other words, he preferred a small immediate expenditure to a small ultimate one. The steam plant fairly met the conditions, but it has all been the result of surpassing ingenuity and adaptation.

There are being used in this country only about five and one-half million horse powers developed by falling water. Especially in the earlier days do we fail to find anything like the degree of ingenuity in the adaptation of such power which we find in the use of steam. There is a good reason for this, which will be discussed later. That which it is desired to emphasize here is that, up to the day of electrical transmission, water power was used only where it was situated so conveniently and developed so cheaply that the economy was self-evident. Before the day of steam our manufacturing centers were located at water powers. After the development of the compound engine, power centers sprang up in the almost waterless plains. The industrial world went steam mad. What of the consequences?

There is no disposition to claim that the almost universal turn to steam was not based upon fundamental necessities. It was one of the reasons for our industrial advancement and it must ever mark an epoch in our civilization. But it was not without its detriment. The tide of industrial favor turned squarely away from water power. It was a dethroned monarch and few were those who gave it thought. Thus the steam habit became fixed, and so firmly does it hold sway that, even in this day of electrical transmission, the steam tide is not checked. Steam plants are installed in utter forgetfulness of water-power possibilities. Such powers still await the engrossing attention that was in the earlier day bestowed on steam. In spite of all this, it is apparent to everyone who has examined into the situation that fuel power is more costly than water power. Therefore in persisting in the use of fuel power the people of the country have

burdened themselves with an often needless tax. Such a tax must be a handicap. In the face of a world's progress, can we afford to carry a handicap? We are not the only progressive people on earth. There are other nations who will command our best efforts in the race, even if we are stripped for the fray. By turning to water power as their source of mechanical energy they will easily out-produce and under-sell us. It all rests on the wise selection of the cheapest source of energy; it is the parallel of the good and the poor tool.

Our stores of fuel are being consumed and the price thereof must increase.

The total amount of coal consumed in the United States from about 1814 to the close of the year 1908 is 7,279,734,143 tons. The increase in coal consumption is shown by the following statement:

ANNUAL CONSUMPTION OF COAL IN THE UNITED STATES.

	Tons.
1898	219,976,267
1899	253,741,192
1900	269,684,027
1901	293,299,816
1902	301,590,439
1903	357,356,416
1904	351,816,398
1905	392,722,635
1906	414,157,278
1907	480,363,424
1908	415,000,000
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1895	193,117,530
1890	157,770,963
1885	111,160,295
1880	71,481,570

Our stores of coal have been well explored and those who know most about the situation say that, at our present rate of increase in consumption, all our coal will be gone before the middle of the next century, and some declare that the end will be seen during the present century. Now this may not seem important to the man who conceives that he has no duty beyond his day and generation,

but he is mistaken even from his own standpoint. It is an inevitable natural law that whenever the supply of any commodity becomes reduced the price thereof must increase, and moreover the increase is progressive from the beginning of the impoverishment of that supply until the end. The coal supply and the price thereof form no exception to this law. The price of coal is lower to-day than it will be five years hence. The price of anthracite coal has increased until the limit has practically been reached, that is, so long as our bituminous coals remain at a price approximating the present market value, it will not be economical to pay more for anthracite coal than approximately the present market price. This is merely an economic adjustment between the thermal efficiency and the market price of the two kinds of coal, but it forcibly illustrates the fact that our demands upon the store of anthracite coal have already impoverished it to an extent that nearly drives it from the market at the present time.

As the cost of coal is the chief item in the cost of steam power, it follows that an increase in the price of coal must mean an increase in the cost of steam power, which will widen the margin of cost of steam over water power. The handicap imposed by excessive cost of steam power is a growing one. The greater our progress under steam power, the greater must be the unit price that we pay for such progress. The right way to meet this condition is to lessen the demand. This can best be done by supplying the people with mechanical energy from running streams.

Only a certain part of the coal that we consume is used for power generation. It is inevitable that for a long time in the future coal or similar fuel will be needed for mere heating purposes. Therefore there is a good reason for saving our coal supply, even though there is promise that it may not in the near future be needed for power generation. Although at the present time our methods of converting electrical energy into heat are too wasteful to be adopted on any large or general scale, we may reasonably expect that continued improvements in our methods of conversion will make a progressive reduction in our dependence on the use of fuel for heating purposes. But, even if our methods are improved faster than we may reasonably expect at the present time, it will be several centuries before all our use for fuel will be supplanted by another source of energy. It will be of interest to consider what proportion

of the coal consumed in the year 1908 might have been saved had there been in this country a development of water power sufficient to supply the greatest reasonable and possible demand, due regard being given to considerations of market and cost of water-power development. Such a statement must be based on our present limits of electrical transmission and conversion and, broadly speaking, such limits must be confined to the use of water power for light and mechanical energy, with an efficiency limit of transmission at 150 miles.

At least one-third of the coal now used in the United States could be saved by the wise and considerate development of water power.

There are in use in the United States somewhat more than 26,000,000 horse powers produced from fuel, principally in the form of steam power. Not all of this power could be supplied from water-power plants. The reason for this is that there are many great steam-power centers located at points remote from great water powers. To supply the large demands at those points, it would be necessary to transmit electrical energy over greater distances than can be done efficiently at present. The longest transmission in the United States is 220 miles, but this is accomplished only with a sacrifice of economy. This power station is one of a connected chain from which energy is supplied to several centers of utilization. There are times when the demand at the most remote point in the system is greater than can be supplied by the near-by stations and it becomes necessary to make up the deficiencies by transmitting from the farthestmost station, 220 miles distant. In other words, this transmission is the resort of necessity rather than the practice of economy. Those most familiar with the practical side of electric power transmission testify that under present conditions the line losses increase disproportionately beyond a distance of about 100 miles. Of course, longer transmission is fairly common and not without profit to the producer; but, on the other hand, the shorter transmission is far more profitable per kilowatt hour.

The conditions above stated would apply with force in case it were attempted to substitute electric power for all our present steam plants. The City of New York, for example, is probably the

greatest center of mechanical power consumption in the United States, if not in the world. Water powers situated within the present limits of efficient transmission to this city would not supply more than a small part of the entire demand. This being the case, it is doubtful if it would pay to try to utilize that which might be supplied. Such condition will, of course, be corrected in the future. Improvements in the efficiency of wire transmission will surely be made. It appears to the author, after taking a general view of the entire country, that about eighty per cent. of the steam power used could be replaced by water power. Let us assume, for the sake of being conservative, that the amount is seventy-five per cent. This means that there are 19,500,000 horse powers, which presumably may be produced by water power. It is not meant by this that every unit included in this great substitution could immediately be put on a paying basis—far from it. The ultimate benefit must be derived from the system as a whole. The case resembles that of a great railroad system; some of the branches are operated at a loss and others at an immense profit. The algebraic sum of profits and losses for the whole system determines the ultimate profits. So in the present discussion we are considering water power from the broad standpoint of essential public economy. The subject is so great that the gimlet-hole view must be incomplete. The progress or poverty of any particular plant is not of immediate importance.

It is not an easy task to determine the average amount of coal used to produce a horse power throughout the year. Boilers and engines throughout the United States differ widely in efficiency. There is a similar variation in the heat-producing quality of our coals. Some of the power produced in steam plants is used only ten hours each day, and during the remaining fourteen hours little coal is used. Other plants are in practically constant operation. Therefore any estimate of the average consumption of coal per horse-power-year for the whole country must be subject to errors of individual judgment. All the facts having been considered, the author believes that ten tons per horse-power-year is fair and reasonable, and he will use this as the factor. Any person who believes another factor would be more suitable may change the following estimate accordingly. The 19,500,000 steam horse powers above named must have required the burning of 195,000,000 tons of coal in 1908, which is about forty-seven per cent. of our total production

for that year. This figure presents a fair idea of the amount of coal that might be saved by the substitution of water power under present limits of efficiency in electric conversion and transmission. What do the people of the country pay for the privilege of using their coal in this manner?

The people of the United States are paying a high price for the privilege of impoverishing their coal resources.

We must now face the task of estimating how much more steam power costs than water power. Of course, the cost varies with the price of coal and with the ease with which water power may be developed in various parts of the country. Some water powers may be improved and operated at small cost, while others are so expensive that they can not be profitably built and operated at the present market price of power. This market price varies also. In the great Northwest, for example, the price of coal is high, while water powers, especially in Columbia River basin, may, as a rule, be established at a relatively low cost. On the other hand, in a coal-mining region, where coal can be purchased at a nominal price, the water power than can compete with a steam-power plant must be of unusual cheapness and efficiency. The conditions vary so widely that the best way to arrive at some basis of estimate is to select some area which fairly represents average conditions.

In the area so chosen coal should be comparatively cheap and water abundant. The author believes that such an area is defined by the State of New York. It is situated so near the Pennsylvania coal fields as to make the price of coal somewhat below the average. On the other hand, New York is bountifully supplied with water-power privileges. Therefore the relative cost of the two kinds of power in New York ought to afford a good as well as a very conservative factor for the entire country. The New York State Water Supply Commission, in making its third annual report in 1908, gave careful study to the relative advantage of water power over steam power and reported that "at a low estimate the advantage of water over steam power is at least \$12.00 per horse power per year." Note that this is a "low estimate" for New York State, and note further that in this state steam power must be relatively cheap. Therefore it seems hardly possible that if this factor of \$12.00 be

used for the whole country, the total will be too high. Applied to the 19,500,000 H. P. above referred to, there is given the stupendous annual charge of \$234,000,000 annually, which may be regarded as a penalty for using steam power. Supposing this amount were deposited annually to create a sinking fund, can there be any doubt that the principal sum would be sufficient to develop the equivalent amount of water power and also to pay the damages arising from the abandonment of steam plants as fast as they were worn out in service?

The menace to American industrial leadership is already on the horizon.

It has been stated that leadership in the productive world depends upon a wise choice of the source of mechanical energy to be utilized in such production. It ought to be clear that we, as a people, can not sustain this leadership if another people choose to pursue a policy that will place at the disposal of the manufacturing world a cheaper power than that which we supply. It behooves us to look about and see whether or not there is any indication that such a policy is present or prospective.

The situation in Switzerland¹ is not without its menace. The people there have awakened to the fact that, whereas their scenery is a great resource, greater possibilities lie in their water powers. They are developing these powers, with the professed purpose of attracting within their boundaries as large a number of industries as they can supply with motive power. Great plateaus and benches previously given over to agriculture are the prospective sites for such manufacturing plants. So wide of scope is the plan that those who revere the scenic beauties of Switzerland are becoming disturbed over the promised impairment thereof. The whole plan is one of national encouragement of industries. Is there anyone in the United States so confident of this country's industrial leadership as to assert that the wholesale development of those large and cheap powers in Switzerland will not seriously affect our status in the productive world? Trade and production are entirely cosmopolitan. The cheapest sources of energy are going to be used without refer-

¹See paper in this volume on "Federal Control of Water Power in Switzerland," by Treadwell Cleveland, Jr.

ence to any particular flag if they are located in a region convenient to market. There could be found no point more accessible to all the great markets of Europe than the Republic of Switzerland. Nor is Switzerland alone in this practical advantage.

France is making amazing strides in water-power matters and the appreciation of the public duty in this respect appears to be more acutely felt there than in almost any other country. There is proper recognition of the fact that electric transmission of water power has introduced a new and forceful element into the political economy of the Republic. Whereas, before transmission, water power was a local matter, appurtenant to the particular site at which it was located, it has become a matter of general and special utility and should be so treated in the administration of government. French law relative to water-power development has received careful consideration during the past few years, and new concepts relative to the rights of the state have been adopted.

The first proposed reform consists of the granting of concessions for the development of water power, in the same manner as concessions are granted for public or quasi-public works, these concessions being limited to a specified time and to a specified amount of power. The principles proposed as a basis for this reform are: first, that all the various uses of water power must be facilitated and encouraged simultaneously, because it is of the greatest advantage to distribute the power produced among the greatest possible number of uses; second, that engineers and representatives of all kinds of interests must be encouraged to make studies and propositions as to combinations and projects of every nature relative to the best uses of water power; third, that the power of concession must belong to the state, which alone is able to combine all available information and to settle difficulties arising among opposing interests, the state in this case being the central government of the Republic. This power of concession is to be exercised irrespective of all business and financial prejudice, in the sole effort to derive the greatest possible amount of benefit. In every case in which there is no general public interest that would be damaged thereby, and only in such case, such concession shall be granted in the following order of preference: to the province; to the county; to the private company. The fourth principle is that the term of concession shall be as limited as possible in order that mistakes or defects may from

time to time be corrected and that changes may be made to conform to modifications in conditions.

The broad proposal briefly outlined above indicates merely that the Government of France is entering upon a campaign of encouragement and development of water powers, with the sole purpose in view of making the greatest possible use of this, its most important source of mechanical energy. It is significant that so broad a principle of public control should have been proposed and it is to be assumed that the proposal was the result of careful consideration, supplemented by the ripe experience of the famous hydraulicians, both past and present, of that country.

Germany, Austria, Italy, Sweden and Norway do not lag behind France and Switzerland in making a bid for industrial leadership through the agency of water power. Not long since Norway diverted from the United States to its own borders a great manufacturing plant, the product of which is one of the most necessary commodities in modern trade, necessary in peace and indispensable in war. The sources from which the world is now supplied with that product are failing and the process of this great company will eliminate those sources from the market, whether they fail within a decade or a century. The possession of that industry within our borders would certainly have been of strategic importance, but because public policy in the encouragement of water-power development in the United States is not as favorable as that in Norway, the industry located there. Having utilized the sites that were ceded to it by the Norwegian Government, this company is now seeking another location on which it is proposed to make a larger water-power development than has ever been comprised in a single unit or group of units. There are in the United States numerous sites at which this demand for power could be supplied, but the same conditions prevail here now as prevailed at the time of selecting the first location. European countries, knowing the strategic value of the plant in time of war, are offering inducements and concessions. The company, for various reasons, not the least of which is patriotism, would prefer to locate in the United States; but it finds among the people here no disposition to meet the conditions imposed by the situation, and at the present writing it looks as though the plant would be located in either Germany, Switzerland or France. If our people do not take advantage of this opportunity,

it is probable that at some time in the future the United States will be obliged to buy the most necessary element in national defence from an unfriendly power or through a mediator. There are real difficulties in the way of securing proper concessions to meet such an emergency as this. The country that has adopted a policy will always have the advantage of a country like ours, which has no policy save that of tolerance and license of the greed of individuals.

There is more than enough water power in the United States to fulfil every want that may reasonably be expected to arise in many generations.

When we sum up our power resources and try to find out how long they will serve our future needs, we must look at the matter from a viewpoint different from that taken by the promoter of to-day. He is seeking an investment that will return a profit, and the elements that enter into his considerations are immediate cost and immediate market. It is not pleasing to him to invest in a plant that promises remote profits, but he seeks the opportune combination of demand and supply. We, on the other hand, must have in mind the broader subject of public necessity and economy. Therefore, when we say that our available water power is so much, it should be understood that a part of that amount is not suited for immediate use, but will become useful when our demands have increased to a point at which the high cost of installation is warranted. Some day in the future, the water-power privileges that we now pass without a moment's consideration will be profitably utilized. With this principle in mind, let us estimate the extent of our power resources.

No complete survey has ever been made of the water powers of the United States. In some parts, the facts are well known; in others, we have only approximate data. Yet that which is hereinafter set down is accurate enough. The power afforded by any river may be stated in several ways, each of which is subject to interpretation. Rivers fluctuate in flow, and it follows that the power must vary according to the fluctuation. Therefore in stating the available power it is necessary to give the stage of the river at which the stated amount may be produced. It should be plain that the most useful power is that which will be continuous throughout the driest year, and this is the amount that will be developed by

the lowest flow. The usual expressions for the energy so produced are "minimum power" or "primary power."

Whenever the river is running above the minimum flow, the power that it will develop is increased. Usually, the period of minimum flow is short, sometimes continuing for only a week or two, and seldom does it occur for more than two or three months in humid regions. Therefore, during the greater part of the year the river will produce more than the primary power. This power in excess of the primary may often be used for purposes that do not require power during the entire year. When, for example, a manufacturing plant which runs only a part of the year can be regulated in operation so that the periods of high water may be utilized, then the use of the power in excess of the primary is of great value. There are many other conditions and circumstances under which excess power may be used to advantage. The power in excess of the primary is usually termed "secondary power."

One of the important studies previous to the construction of power plants is that of the limit to which secondary power can be economically developed. In some parts of the country it is profitable to install wheels and appurtenances to develop power up to that which will be produced by the minimum flow for the four months of highest water in the year; in other parts it is necessary to develop to the minimum for the highest eight or ten months in order to warrant the expenditure. The market for such power is the deciding factor. A fair average limit of profitable installation for the entire country is represented by the power corresponding to the minimum flow for the six highest months in the year; this factor has been used in the following schedule.

The third basis for power statement is the "total power with conservation," that is, the power which may be developed if the upland floods are stored in reservoirs and held until needed during dry seasons. It is plain that such a procedure will greatly increase the low-water flow and correspondingly increase the primary power available. Such a process is the highest development of a river for use in any capacity. The primary power so developed is the maximum that the river will furnish.

In developing the following figures consideration has been given to many of the conditions that prescribe the limits of power production on our rivers. Especially has the slope of the stream chan-

nels been scrutinized. The theoretical energy developed by a river is that which would be produced by the average amount of water that it carries if it should fall a perpendicular distance equal to the fall of the river from source to mouth. It has not been assumed that, even under ideal conditions of market, all theoretical power will ever be commercially available. The flatter portions of river channels can never be profitably developed and they have not been included in the schedule. In all cases the actually measured fall has been reduced ten per cent. in the computations. A further reduction of ten per cent. has been made to compensate for wheel efficiency. It is recognized that ninety per cent. is too high a wheel efficiency to be used in calculations of power at the present time, seventy-five or eighty per cent. being the usual installation maximum. Here again, it should be recalled that we are computing for future conditions as well as present ones and it may confidently be expected that, with the improvement of turbines, a greater percentage of the theoretical power will be realized on the shaft. We may expect before long to secure a ninety per cent. efficiency.

The rivers have been divided into sections of varying length, determined by channel slope, and the fall and flow of each section have been obtained from the best available sources of information. The records of stream flow collected by the Water Resources Branch of the Geological Survey have almost uniformly been the only available resort, although acknowledgments should be made to the State Water Supply Commissions of New York and Pennsylvania, the State Engineers of New York, Colorado, California, Oregon and Nebraska, the Territorial Engineer of New Mexico, the State Geological Surveys of Maine, New Jersey, North Carolina, Virginia, Georgia and Wisconsin, and to the various other bodies and individuals, public and private, who in the past have maintained measurements in co-operation with the United States Geological Survey, or independently. Use has also been made of certain river gauge records of the United States Weather Bureau and the Corps of Engineers, U. S. A.

In the actual management of storage the waters are released according as needed and they must be distributed as closely as possible according to the severity and length of the dry season. Such distribution will vary each year according to the climatological conditions governing river discharge. Some assumption has been neces-

sary and it is believed, from the experience gained in the study of rivers throughout the country, that it will be fair and conservative to assume that if in present computations of the amount of power with conservation any given storage be considered as drawn upon uniformly during six months of the year and the natural flow from the unconserved areas be considered as sufficient to maintain at least an equal flow during the remaining six months, the results will not depart too widely from the actual conditions as regards total power.

The following schedule is the result of the process above outlined. The results do not include the State of Pennsylvania, figures for which had not been furnished up to the date of this report.

Principal Drainages.	Drainage area, sq. miles	Flow per annum, billion cubic ft.	Horse power available.	
			Primary or minimum.	Minimum of the six highest months.
Northern Atlantic to Cape Henry, Va.	159,879	8,942	1,702,000	3,186,600
Southern Atlantic to Cape Sable, Fla.	123,920	5,560	1,253,000	1,957,800
Eastern Gulf of Mexico to Mississippi River	142,220	6,867	559,000	963,000
Western Gulf of Mexico west of Vermilion River	433,700*	2,232*	433,760	822,650
Mississippi River, main stem.....	1,238,800	21,940	147,000	335,000
Mississippi River (tributaries from east)	333,600	12,360	2,472,590	4,940,300
Mississippi River (tributaries from west, including Vermilion River) ..	905,200	9,580	3,948,970.	7,085,000
St. Lawrence River to Canadian line	299,720†	8,583†	6,682,480	8,090,060
Colorado River, above Yuma, Ariz..	225,000	521	2,918,500	5,546,000
Southern Pacific to Point Bonita, Cal.	70,700	2,193	3,215,400	7,808,300
Northern Pacific	290,400	15,220	12,979,700	24,701,000
Great Basin	223,000	518,000	801,000
Hudson Bay	62,150	614	75,800	212,600
Total	4,508,289	94,612	36,906,200	66,449,310

*Includes Rio Grande in Mexico.

†Includes drainage in Canada.

The remarkable feature of the foregoing table is the indicated amount of available water power in the Northern Pacific drainage. This area includes all the Pacific Coast streams north of Point (549)

Bonita or Golden Gate. It includes the Sacramento River and its highland tributaries, also the Columbia River. The latter is by far the greatest water-power stream on the American continent. Few people living within the basin have any adequate idea of the resources there, and the remainder of the people of the country are practically ignorant even of the general facts. In a country as great as that of the United States and in which water powers are so abundant, it is astonishing to find that one-third of the power resources are existent in this proportionately small area.

The drainage next in size from the standpoint of water power is that of the St. Lawrence. It is needless to state that the power resources at Niagara, which include the cataract and rapids below, add materially to the total figure. Although in the foregoing table the drainage area and the flow are given complete, the water-power figures, outside of Niagara and the St. Lawrence itself, include only those powers within the territory of the United States. The total power afforded by Niagara River will never be utilized unless at some time in the future there is a demand for mechanical energy that transcends other considerations. Steps have already been taken by the United States and similar action is promised by the Dominion Government, under which a restriction is placed on the production of power so that the scenic beauty of the falls will not be destroyed. However praiseworthy this policy may be, it will certainly give way if at any time in the future necessity demands that all the Niagara power be placed in productive use. Of course, the contingency is remote—let us hope that it may never materialize.

The other great areas in which enormous power is available are the eastern and western slopes of the Appalachian Mountains, the eastern slope of the Rocky Mountains and Colorado River basin.

An endeavor has been made to estimate the power that might be produced if all storage facilities that were practicably available were developed. Topographic surveys on many of the basins make it possible to give a fairly close estimate; but, inasmuch as three-fourths of the country has not been surveyed in this way, the estimates for that area must be approximate. There are two methods by which such an estimate can be made. In the first, it is necessary to determine the power with conservation in those portions of the country covered by adequate surveys, and then to assume that if the amount so secured represents one-fourth of our total area the

total power must be approximately four times that amount. An examination of the facts will readily show that the amount so obtained will be too small. It is apparent from a review of the index map showing the areas covered by topographic surveys that a fairly large proportion, probably one-third, comprises country in which there are no feasible reservoir sites or in which they are uncommon in occurrence. Such portions include large parts of the Dakotas, Nebraska, Kansas, Oklahoma, Texas and Louisiana, together with great areas on the Atlantic and Pacific coastal plains. Therefore to increase the total available water power, from storage that may be computed on surveyed portions, by the ratio of total surveyed area to the area of the entire country would hardly do justice to the situation. Nevertheless, the figures are here presented.

It is found that the total power with conservation available in the surveyed portions is about 53,000,000 H. P. If this be considered as one-fourth, to correspond with the proportion of the country surveyed, the total power of the country, with practicable maximum storage, will be about 212,000,000 H. P.

The second method involves detailed study of the physiographic features of the country. The topographic surveys, while they cover only one-fourth of the total area of the country, have nevertheless been prosecuted in all sections and on all types of drainage area. If it is found, for example, that over a certain portion of the Colorado basin topographic surveys reveal a certain factor of storage, then it will be fair to assume that in every portion of that basin of the same physiographic type the same factor will roughly apply. This process has been employed for the whole country, and while the results are by no means sufficient for working estimates, they do nevertheless establish a fairly definite and reasonable limit. By using this method, there is afforded a grand total of 230,800,000 H. P. This figure agrees so closely with that obtained by the first method that both figures are worthy of some confidence.

In any case, it will be fair to assume that, when all practicable storage sites are utilized and the water is properly applied, there will be eventually developed in the country a total power equivalent to at least 200,000,000 H. P.

No one can fix the date at which our people will use all this power. There are involved too many uncertain factors, the potency of which is either totally unknown or can merely be approximated.

One who attempts to fix any precise or even approximate date will encounter the following difficulties.

First:—About eighty per cent. of the power used at the present time is produced from fuel. This percentage will decrease in the future, until the high cost of fuel will finally drive fuel power out of the market. Therefore, in summing up our future power utilization we may assume that all the power now and hereafter generated from fuel may be disregarded, for it will all finally be displaced by water power. The current increase in the use of fuel power is enormous and must continue for several decades at least. The great water-power developments of the next quarter century will be designed to supply mechanical energy to new markets in regions and places now unsupplied rather than to take the place of steam plants already installed. No one expects to see in the near future any actual decrease in the amount of steam power utilized unless, perchance, by some happy combination of events there should be brought about in the minds of our people a realization of things as they ought to be. Few men, in this generation at least, are possessed of sufficient altruistic instincts to induce them to give up their steam plants for the sake of the ultimate conservation of our coal resources. But even if this were not so, there would still be enormous utilization of coal. There are great centers of power utilization which, under the present limits of electrical transmission and conversion, can not be served by water power because they are situated too far from water-power sites. Therefore fuel power is necessary and will be utilized until electrical transmission has been made more efficient. All of this brings a fluctuating factor into the prediction concerning the sufficiency of our water powers in future years. There is no escape from a broad generalization in this matter.

Second:—It is unsafe to estimate the future demand for power from past utilization. The increase in the amount of power used for manufacturing purposes during the decade 1870-1880 was forty-eight per cent. During the next decade it was seventy-four per cent. From 1890 to 1900 it was seventy-five per cent., while in the year 1910 the increase over that of 1900 promises to be about eighty-five per cent. There is an increasing rate of increase in the utilization of power at the present time, but this can not always continue. While it may be that the actual amount of power in use

will increase with each decade and that each decade's actual increase will be greater than that of the preceding, the percentage increase must, after a while, be less each decade. Just what this rate of decrease will be can not be foretold, for it is dependent upon so many changes in methods and production that it, too, must be largely generalized.

Third:—By way of partial compensation for the growing demand upon our power resources, there is the assured increase in efficiency with which that power is used. This is merely another way of saying that we shall accomplish more in the future with one horse power than we can to-day. The losses of potential power between the falling water and the application of that power, after transmission, transformation, etc., to productive work are great, but not as great as they were in years past. This improvement will continue, but no one knows how fast, and therefore another uncertain element enters into any estimate of the sufficiency of our water power resources. If in the use of our 200,000,000 H. P. we reduce the losses in efficiency from forty per cent. to ten per cent., the effect will be the same as though 60,000,000 H. P. were added to our ultimate resources.

All we know to-day is that according to our best calculations we have of available water power in the United States somewhat more than seven times our present total power utilization. Considering the matter broadly, with the above fluctuating factors in view, as well as many others not here discussed, it seems safe to predict that our water power will be sufficient for our needs for at least seven generations hence.

The water power plants in the United States make productive use of only five and one-half million horse powers, an amount which is less than one-fortieth of that ultimately available.

The following table contains a summary of the number of water-power wheels and the horse power generated in each of the states of the Union. The figures are the result of a census made during the year 1908 by the United States Census Bureau. It is probable that they are not complete; yet all the important plants are included and it is certain that the missing data form so small a proportion of the total that these results can be accepted as substantially correct.

State.	Wheels.	H. P.
New York	6,513	885,862
California	1,070	466,774
Maine	2,797	343,096
Pennsylvania	5,596	290,990
Massachusetts	2,749	260,182
Oregon	590	231,379
Wisconsin	1,667	220,916
South Carolina	1,301	207,242
Michigan	1,498	205,019
New Hampshire	1,799	183,167
Vermont	2,018	170,276
Georgia	2,314	166,587
North Carolina	3,975	162,284
Alabama	1,804	161,694
Minnesota	531	152,389
Montana	204	148,052
Washington	475	147,041
Connecticut	1,546	118,145
Virginia	3,011	100,123
Tennessee	2,160	95,060
Colorado	353	78,878
Idaho	285	78,743
Utah	260	64,265
Illinois	413	50,116
New Jersey	902	38,011
Rhode Island	387	37,165
Ohio	873	34,840
Indiana	495	29,153
Maryland	694	21,715
Nevada	39	20,577
West Virginia	672	20,500
Kansas	184	18,606
Iowa	461	17,304
Alaska	106	17,289
Arizona	37	16,855
Kentucky	834	14,156
Nebraska	227	12,792
South Dakota	68	11,112
Missouri	397	10,107
Texas	195	9,966
Delaware	277	7,976
Mississippi	336	7,922
Arkansas	255	5,868
Florida	207	4,539
Wyoming	66	3,855
Oklahoma	29	2,994

State..	Wheels.	H. P.
New Mexico	56	2,310
Louisiana	79	1,184
District of Columbia	6	1,000
North Dakota	16	613
Total	52,827	5,356,680

The above results are shown by general drainage divisions of the country as follows:

Division of the United States.	Wheels.	H. P.
Northern Atlantic	21,864	1,746,303
Southern Atlantic	5,938	459,652
Gulf of Mexico:		
Eastern	3,342	139,758
Western	258	12,071
Mississippi River:		
Tributaries from east	8,959	537,080
Tributaries from west	2,385	331,739
St. Lawrence River	6,806	1,018,283
Colorado River	285	74,428
Southern Pacific	822	423,707
Northern Pacific	1,659	489,454
Interior Drainage	353	115,944
Arctic Ocean	66	8,261
Total	52,827	5,356,680

Some interesting facts are shown by the above. The total development in the country is 5,356,680 H. P. over 52,827 wheels, or an average development per wheel of about 100 H. P. In the Northern Atlantic Division there has been a greater water-power development than in any other, the total installation being 1,746,303 H. P. The only other division that approaches the Northern Atlantic in development is that covering the drainage area of the St. Lawrence, including the Great Lakes, where there has been a development of 1,018,283 H. P.

The great power development in the Northern Atlantic Division began at an earlier period than in any other portion of the country. New England and the Middle Atlantic States are and have been the important manufacturing centers of the country, largely by reason of the impetus imparted early in our history by the abund-

ance of good water powers. Comparisons of wheel capacities installed in various parts of the country are interesting. While the total figures show that the average power per wheel is about 100 H. P., the units in the various districts vary as follows:

Division.	Unit capacity H. P. per wheel.
Northern Atlantic	80
Southern Atlantic	77
Eastern Gulf of Mexico.....	42
Western Gulf of Mexico	47
Eastern Mississippi	60
Western Mississippi	139
St. Lawrence	148
Colorado River	261
Southern Pacific	515
Northern Pacific	295
Interior Drainage	328
Arctic Ocean	125

The large number and small capacity of wheels in the eastern part of the country as compared with the smaller number and larger capacity in the western portions, including especially the rivers draining from the Rocky Mountains and the Sierras, may be explained: First, by the fact that in the eastern and central portions of the country the power privileges are of smaller capacity; and second, by the fact that in the eastern portions of the country a large number of the powers were installed at an early date, when small units were common. More recent practice has involved the establishment of larger units, and, as the western installations are all recent, this practice, taken together with the existence of the larger power privileges, gives the result that might be expected from a general survey of the situation.

The first table shows that New York State has the largest water-power development, the total being 885,862 H. P. It is proper to add that the Niagara powers on the New York side assist largely in increasing this figure. The second state in water-power development is California, the total development being 466,774 H. P. over 1070 wheels, or a unit installation of about 436 H. P. Water-power development in California is comparatively recent. The third state is Maine, with 343,096 H. P. over 2797 wheels, or an average of about 123 H. P. per wheel.

(556)

Among the other interesting points is the fact that, although the Northern Pacific division can be made to furnish about one-third of the total minimum horse power of the country, there is at the present time a development of only 450,000 H. P., which indicates clearly that the most fertile field for power development remaining in the United States is this northwestern country.

Census returns show that, out of a total of 31,537 powers reported, 602 are of capacity of 1000 H. P. or more. Recent progress in water-power development has been marked by great installations. In former years the aggregate water-power utilized in the country was made up largely of small units which, while useful for local purposes and worthy of development, are not relatively important in the great question of power economics. The following summary gives the distribution of the powers of 1000 H. P. and greater capacity, and it shows clearly that what was formerly believed to be an uncommonly great installation must now be considered a comparatively small one.

CAPACITY DISTRIBUTION OF POWERS OF 1,000 H. P. AND MORE.

1,000 to 5,000	5,000 to 10,000	10,000 to 15,000	15,000 to 20,000	20,000 to 25,000	25,000 to 40,000	40,000 to 60,000	60,000 to 100,000	100,000 and over.	Total number of powers.
459	65	27	13	17	11	4	3	3	602

Brief descriptions of typical water-power plants, including statements relative to their organization, field of application, etc., will now be given. Obviously, it will be impossible to enter upon a detailed description of the structural and mechanical features of the various plants. This, in itself, would require more space than has been allotted to the present paper. The best that can be done is to outline the most noteworthy features, which typify the various situations under which power plants are developed and operated.

The water power available at any privilege depends principally upon two factors: First, the amount of fall or the hydrostatic head on the wheels; second, the amount of water that can be turned over the wheels. Water powers developed in the United States represent all sorts of combinations of fall and flow, the particular type depending on the natural conditions at the various sites. In the earlier powers in New England and New York, for example, the static head is usually low and to develop a great amount of power it is

necessary to discharge a large volume of water upon properly designed wheels. In many of the more modern plants of the West, where only a small amount of water is available, there is a great fall. As a result we may have in one place a plant developing, say, 10,000 H. P. with a fall of anywhere from twenty to forty feet, and in another place a plant of the same capacity with a fall of 1000, 1500 or 2000 feet. It is obvious that in the one case the lack of fall is compensated by the great volume of water and in the other case the converse conditions prevail. So far as the usefulness of the energy is concerned, it makes no difference whether the power be developed by the one type of plant or the other, although of course there is a difference in the application of the water and in the type of the implements of power conversion. So far as actual energy is concerned, it makes no difference whether we develop a certain amount of power by allowing ten cubic feet of water per second to fall one foot or by allowing one cubic foot of water per second to fall ten feet. In the following descriptions of power plants, the different conditions outlined above will be illustrated.

*St. Lawrence Power Company.*²—This plant is of a type in which the head on the wheels is limited, but this deficiency is made up by the use of a large amount of water. It is one of the more recent large power installations in the eastern part of the United States and was at the time of its construction the largest in the United States, with the exception of that at Niagara. The flow of St. Lawrence River is more nearly uniform than that of any large river on the American continent. All of the Great Lakes act as storage reservoirs and their capacity and expanse are so great that the fluctuations of flow that are common to rivers not so regulated are minimized.

In the vicinity of Massena, New York, the St. Lawrence descends over the Long Sault Rapids, the total fall in a distance of eight miles being forty feet. About three miles south of the St. Lawrence, Grasse River runs nearly parallel thereto and enters the former a short distance below the foot of these Rapids. As the channel of Grasse River lies at this point about forty feet lower than that of the St. Lawrence at the head of Long Sault Rapids there are afforded unusually favorable natural conditions for the development of a power plant. All that is necessary for such development

²Abstracted from "Engineering News," Feb. 21, 1901.

is the cutting of a canal of large capacity across the plateau from the head of Long Sault Rapids and dropping the water over wheels into Grasse River.

The plans for this development as originally laid out, provide for a canal 16,200 feet long, 226½ feet wide at the water line, and 25 feet deep, laid on a grade that will provide a flow sufficient for the generation of 75,000 H. P. The first step in the construction provides for the utilization of only 35,000 H. P., the canal having been excavated more than half its final width. At the end of the canal a dam and power house of monolithic concrete has been constructed. It is one of the largest ever undertaken in this country. The dam is a heavy wall, 8 feet thick at the water level and 15 feet thick at the floor of the turbine chambers. These chambers are located on the back of the dam and are separated from each other by walls 6 feet thick, laid at right angles to the axis of the main dam. The chambers between these walls are thirty-two feet in width and each contains three double horizontal turbines mounted on a common shaft. Each shaft pierces the wall of the turbine chamber and enters the dynamo room and upon each is mounted a 5000 H. P. generator. Each single turbine has a normal capacity of 1000 H. P. when working at a minimum net head of thirty-two feet. The generators are alternating-current, rotating field machines, developing 5000 H. P., each at a potential of 22,000 volts.

At the time the plant was constructed there was little or no market for the power in the vicinity of Massena, and it was the expectation of the promoters of the company that the erection of a power so cheap and efficient at this place would attract the location of sufficient industries, such as pulp and paper, chemicals, etc., to return a profit on the investment. The plant is therefore one of many in the United States constructed in anticipation of market rather than by reason of a market already in existence.

*Southern Power Company.*³—The Southern Power Company, organized June 20, 1905, is a good example of a consolidation of water-power interests, which appears to be necessary for the economic development of water powers in many parts of the country. Quite apart from all questions relating to the much discussed problem of industrial consolidation, there is a physical element govern-

³Construction details abstracted from "Engineering Record," May 18, 1907.

ing the development and utilization of water powers which demands that a large number of powers within certain regions have a common interest. The Southern Power Company, for example, has its field operation in the Piedmont section of the Carolinas, in lower North Carolina and upper South Carolina. Within this section the aggregate available water power is large, but the several units making up that aggregate are comparatively small. The electrical transmission of power over long distances has changed the whole industrial aspect of the matter. Where formerly a water power was utilized at the site and industrial developments proceeded there to the full capacity of that particular power, there was little or no inducement to combine several sites. In other words, the sites were independent in operation. Now, the site of a water power is not likely to be its field of operation, but the power is distributed over a large area. In this large area there is a common demand for power. The market itself constitutes an administrative unit. The demand of the region is a demand in the aggregate and, moreover, it is a demand that must be supplied whether or not the power at any particular point is abundant or scanty. It is a well-known fact that a certain privilege may now produce abundant power, and again may not produce sufficient to meet the normal demands. If the industrial activity of any particular centre is dependent upon that power, it should be clear that the uncertainties of securing power that would arise if only one site were utilized would surely inhibit productive development at that place. When, however, we combine a number of sites on a number of drainage areas, power supply will be comparatively steady. If the power available at a certain site and at a particular time is not sufficient to meet a certain demand, then the available power at a combination of sites may be sufficient.

There is another important consideration: At one point a certain amount of power may be urgently required at a certain time, while at another point the urgent demand may be at a different time, so that in addition to a varying supply, there is a varying demand. This makes it necessary to join together many varying sources of power in order that the supply may be steady, whatever may be the local fluctuations therein. The principle is entirely similar to that in which a company or an individual having large cash assets and urgent calls for money distributes those assets in several banks, with the

result that in time of financial depression if one bank suspends, there is, in another depository, a sufficient amount of call money to insure the continuance of the business. In other words, the demand for power and the utilization thereof are such that it is fatal to have all the eggs in one basket. This should not be considered as a plea for or a justification of indefinite power consolidation. That subject is not in the province of this paper. It should, on the contrary, be regarded merely as an expression of the requirements imposed by nature's laws.

The original field of the Southern Power Company included ten water-power sites in the basins of the Broad and Wateree Rivers, the aggregate horse power available being about 130,000, of which the largest unit, that at the Great Falls of the Catawba, has a capacity of 30,000 H. P. The other sites are: Rocky Creek, Catawba River, 20,000 H. P.; Fishing Creek, Catawba River, 15,000 H. P.; Catawba River at Catawba, 10,000 H. P.; Catawba River at Mountain Island, 5000 H. P.; Catawba River at Landsford, 12,000 H. P.; Catawba River at Horseford Shoals, 3000 H. P.; Catawba River at Lookout Shoals, 5000 H. P.; Wateree River, above Camden, S. C., 20,000 H. P., and Broad River at Ninety-nine Islands, 10,000 H. P. All of these powers are of comparatively low head. One of the typical ones, that at the Great Falls of the Catawba, will be described.

The Great Falls of the Catawba cover about eight miles of that river, the fall in that distance being 176 feet. The plan adopted by the Southern Power Company contemplates the utilization of the fall of three plants, which will utilize sixty, seventy-two and forty feet, respectively, the minimum flows at the three plants being 2220, 2100 and 1950 cubic feet per second, respectively. The resulting powers, allowing eighty per cent. efficiency on the wheels, are approximately 12,000, 14,000 and 7000, respectively. The arrangement of the middle development, or the one having the head of seventy-two feet, is as follows:

At the head of these falls the river channel is divided into two parts by Mountain Island. Across one of these channels at the head of the Island, an overflow diversion dam is erected which, in times of low water, deflects all of the flow into the other channel. The main dam at the headworks is located across this channel near the foot of Mountain Island and from thence the power canal con-

ducts the water nearly one and one-half miles to the tail-race which is located near Rocky Creek, a tributary that enters the Catawba below the fall here immediately utilized. This arrangement was largely adjusted to conform with the natural grade lines there existing, the course of the canal being a natural valley, and a comparatively small amount of excavation was necessary. At the power station, the water is passed over eight wheels and two exciter turbines, through steel penstocks with suitable regulating works. The eight large turbines were required under the contract to furnish 5200 H. P. each, at 225 revolutions per minute under a head of seventy-two feet. The discharge from these turbines is conducted into the tail-race between piers supporting the power house.

*The Animas Canal Reservoir Water Power Company.*⁴—This plant is located in San Juan County, southern Colorado. It is typical of many throughout the country, and especially in the West, which are built in advance of a demand for full capacity of the power privilege. In such places, where a market must be created, it is the usual practice to develop only a part of the power available and to build certain of the appurtenant works of low-cost materials. Thus, the first cost of the plant is reduced to a point at which the small initial business may pay for the fixed charges and possibly return some dividends. In this way, the plant becomes self-supporting while the market grows. From time to time, the temporary structures are replaced by permanent ones and ultimately the full power of the privilege is developed.

The Animas plant is one of the type that utilizes a small amount of water over a high head, the power being recovered on impulse wheels. The water for the first installation was taken from Cascade Creek, a tributary of Animas River. From there it is conducted by a wooden flume about three-quarters of a mile to another tributary, across which is constructed a dam fifty-five feet high and 750 feet long. This dam is a temporary structure of stone and timber, which will one day be replaced by a masonry structure of nearly twice the present height. From this storage reservoir, the water is conducted by another wooden flume about one and one-quarter miles long to an intake basin, and from this the water is delivered through steel conduit upon Pelton wheels at a static head of about 1000 feet.

The amount of water required by the first installation is eighty-

⁴Abstracted from "Engineering News," of Jan. 4, 1906.

seven cubic feet per second and the power developed is from 6000 to 8000 H. P. Future additions to the water supply will provide for an ultimate development of 38,000 H. P.

The intake basin, steel conduit, and power-house appurtenances are permanent structures, as distinguished from all that portion of the works above the intake basin. The only change necessary in these lower works in case of increased capacity of plant will be additional installation of conduits, wheels, generators, etc.

The first installation consisted of two Pelton wheels, each of 3000 H. P. capacity under normal delivery, but so adjusted that they may be made to develop 4000 H. P. each. They are eight feet in diameter and normally operate at 300 revolutions per minute. The electrical equipment consists of two revolving field three-phase sixty-cycle alternators, each of 2250 kilowatts capacity. They afford a voltage of 4000, which current is transformed to 50,000 by six water-cooled oil transformers, each of 750 kilowatts capacity. The current is transmitted over three cables, each of which consists of six aluminum, No. 8 B. & S. wires with a hemp core. The power is transmitted twenty-five miles to Durango and Silverton.

*The Snoqualmie Falls Water Power Plant, Washington State.*³ This is a cataract power. Those heretofore described are of a type requiring construction of long canals or flumes. The Snoqualmie Falls power takes advantage of a vertical drop in the channel of that river amounting to about 270 feet. In this respect the privilege resembles that at Niagara. We are accustomed to consider that Niagara Falls develops the greatest cataract head in the country; yet the vertical drop there that has been utilized for power production is only 153 feet. The Snoqualmie plant is interesting in many respects.

The usual procedure in installing power plants on such cataracts is to divert the water by means of suitable conduits either in tunnel beneath the cliffs or down the outside thereof to the power house erected above ground at the foot of the cataract. In the present case the water is diverted by suitably arranged headworks into a conduit set in a vertical shaft that descends into the cliff a short distance above the crest of the falls. In other words, a hole is made in the bottom of the river at that point and the water is let down into a chamber excavated in the solid rock to the high water

³Abstracted from "Engineering News," Dec. 13, 1900.

level of the pool below the falls. This shaft is ten by twenty-seven feet in cross-section area and 270 feet deep. Beginning at the foot of the shaft and extending horizontally, a chamber 200 feet in length forty feet wide and thirty feet high was excavated. In this chamber the wheels and electrical apparatus are installed. The tail-race consists of a tunnel excavated below the floor of the machinery chamber twelve feet wide and twenty-four feet high and extending outward to the foot of the falls. Thus, the entire generating plant is concealed and the only evidence to the casual observer of the existence of such a plant is the structure at the headworks and the opening of the tail-race tunnel at the foot of the cliff. The conduit that conducts the water from the surface extends along the top of the machinery chamber and from it branches are taken leading to the wheels. This conduit or penstock is a steel pipe, seven and one-half feet in diameter. The branches leading therefrom to the wheels are fitted with gate valves weighing 23,000 pounds each and were at the time of installation the largest in the world.

The generating plant consists of four electrical generators, each driven by a Doble water motor of 2500 H. P. capacity. This motor consists of a shaft carrying tangential jet wheels and the water is conducted under pressure against the flanges by two nozzles to each wheel, these nozzles being so placed that the two jets of water are delivered against the wheel flanges at right angles to each other. Each wheel unit weighs about 100,000 pounds. The electrical generators are of 1500 kilowatt capacity each. They are of the revolving armature type, delivering a three-phase current at 1000 volts, 7200 alternations. The transformer house is above ground at the head of the shaft. The current is received at an initial voltage of 1000 and is raised to 30,000. The power is transmitted to Seattle, Tacoma and Everett, at distances of thirty-two, forty-four and thirty-five miles, respectively. The transmission circuits are of stranded aluminum cables, and this was the first instance of the use of this metal in long-distance transmission. These wires stop at the city limits of Seattle, Tacoma and Everett, and copper is used beyond these points.

The ultimate capacity of the plant is about 100,000 H. P., and the flow of the river at its lowest stage is about 1000 cubic feet per second. In order to accomplish the ultimate power capacity, it will be necessary to construct reservoirs in the Cascade Range at the

head of Snoqualmie River and sites for such reservoir systems are abundant. Construction on this plant was begun April 17, 1898, and it was put into operation on July 31, 1899.

Conclusion. A few of the general principles governing water-power development have been reviewed. Some of the broader considerations relating to the political economy of the production and use of mechanical energy have been cited. There is much more that might be said. The main purpose of the paper has been to emphasize the fact that the water powers of this country have a higher ultimate significance than is generally conceded to them, and that they are certain to have a dominating effect upon the material progress and the integrity of this Republic. If we are to place ourselves in an economic position in which we may finally prevail as a world power, our point of view regarding fuel and water power must be changed, and our policies must be altered so that we may wisely prepare to use the vast power resources which we are now neglecting.

THE SCOPE OF STATE AND FEDERAL LEGISLATION CONCERNING THE USE OF WATERS

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One of the leading defects of the confederation of the American Colonies, after the accomplishment of independence, was the want of power in the congresses to regulate commerce, and this, as much as any single cause, "conduced to the establishment of the Constitution," as Mr. Justice Story says in his "Commentaries on the Constitution." The power "to regulate commerce," conferred on the Congress of the Federal Government by the eighth section of Article I of the Constitution embraces the exclusive control of navigation. (*Gibbons v. Ogden*, 9 Wheat. 1.) The organic source of federal authority in the control of waters is in this section; the limitation of its power is that farthestmost bound which marks the beginning of things not well within operation of a regulation concerning commerce among the states or with a foreign nation or an Indian tribe.

All that absolute right to regulate commerce and navigation carried on within their waters, or to improve navigation on intra-territorial streams, as well as such power over non-navigable waters, as existed in the government of the mother country, passed to the several colonies upon the acknowledgment of their independence. Title to the water and to the subjacent soil belonged to these several states, subject to the local laws and usages governing riparian rights, and was not surrendered at the adoption of the Constitution. The Federal Government, for purposes of commerce, merely acquired a paramount right to control all waters, intra- or inter-state, capable of supporting navigation among these units of the Union. In theory, it has power to conserve the public usufruct in waters so far as navigation is concerned—its jurisdiction ceasing at this point. The mode of the exercise of this power is left to the Congress with no limitation beyond that suggested by the purpose of the grant—to regulate commerce. Congress has the right to improve navigation; it may do this by dredging or by the erection of

dams with locks, or by either; or, it may do all things necessary to induce or regulate suitable stream flow through storage or headwaters, and it is believed, through the conservation of those reservoirs established by nature, the forests. Any and all methods which have the primary purpose of aiding or facilitating transportation by water are within the scope of federal legislative power.

While this power of quasi-sovereignty over navigable waters was transferred from the crown to the colonies, and afterward delegated by the latter to the National Government, the common law definition of a navigable watercourse, for a very obvious reason, was not a part of the acquisition. In the mother country, the ebb and flow of the tide constituted the determining factor, while here it is always a question of fact whether a stream be navigable or otherwise. Such great natural waterways, extending their courses hundreds of miles from the sea, like the Mississippi or the Ohio, were unknown in England; and to such conditions, the common law doctrine was plainly inapplicable.

Over those streams or bodies of water incapable of use for the purposes of trade or commerce in any way, the United States has no jurisdiction except in a single respect later to be mentioned. Of course, in those parts where the territorial form of government still exists, the Federal Government is both sovereign and proprietor as to such waters. It has the *jus publicum* and the *jus privatum*. Upon the admission of territories to statehood, this dual right is relinquished to the state subject to such prior grants as the Federal Government has made and generally upon the condition that the waters shall remain highways free to the citizens of the United States. The new states acquire the same rights, sovereignty and jurisdiction as were reserved to the thirteen original states at the adoption of the Constitution. (*Pollard v. Hagan*, 3 How. 212.) Generally speaking, then, each state has absolute sovereignty over non-navigable waters within its boundaries, as well as title to and dominion over navigable streams qualified only by the prerogatives surrendered to the Federal Government—the paramount control of the waters for navigation purposes. To the latter, all else must yield.

Aside from the adaptability of waters to the transportation of commerce, streams are mainly valuable as a source of power production and domestic water supply, and, in the arid regions, for

irrigation purposes. The state, generally, has control of the use of water in these respects, so far as any *jus publicum* is concerned.

The eastern seaboard states inherited the common law rule of riparian rights. A grant of land bordering on a non-navigable watercourse carried ownership to the centre or thread of the stream, subject to the public easement. That is, the title to the river bed *ad filum aquae* is in the riparian proprietors, not in common, but in severalty. Each proprietor has an equal right to the *use* of the water which flows in the stream adjacent to his land, as it was wont to run, without diminution or alteration. He has no property in the water; only a mere usufruct as it passes. He may not detain it, or divert it to the prejudice of other proprietors, up stream or down, save in some cases where he has a prior right or title to some exclusive enjoyment. He may divert it or a part of it provided he returns it to its usual channel as it leaves his estate. But the maxim usually applicable is "*Aqua currit et debet currere ut currere solebat.*"

Ownership of lands upon the borders of a navigable stream, at common law, involved another rule: the boundary of the grant was the high water mark. The rule, however, is not applied in all the states. In some states it is held that riparian proprietorship extends to low-water mark, while in many the rule is the same as to both navigable and non-navigable streams—ownership of the bed of the stream *ad filum aquae*, subject to the public easement in the waters. Where the riparian's line extends to high or low-water mark, title to the river bed is in the state. As to the water itself, the state, whose interest is that of a sovereign, holds the property in the stream as a trustee for the public, subject to the rights of the United States, if it be a navigable stream, and to the rights of the riparian proprietor. The rights of the latter, however, must yield to the exercise of the police power of the state when the public welfare and health are in jeopardy. Aside from navigation, then, the state and the owners of the land by which it passes are the only parties which have an interest in such waters. Disputes between riparians are settled in the state courts. Needful regulations concerning pollution, etc., are within the scope of the legislative powers of the state, as are also mill acts, the maintenance of ferries, the erection of bridges, etc. It is even competent for a state, in the absence of adverse action by the Federal Government, to improve

navigation in those streams which are clearly, in that respect, within the federal jurisdiction. Likewise, and under such conditions, prior to federal legislation on the subject, the state could authorize the construction of dams or bridges. Of course when either interfered with navigation, the United States could order the removal of obstructions; and this without compensation. Under existing acts of Congress, however, dams, and other structures which may menace navigation, may not be erected in a navigable stream, even if it be wholly intra-state, unless the location and plans thereof be approved by the Secretary of War and the Chief of Engineers of the Army. That is, while the state still may authorize such a construction, the authorization is ineffective until the location and plans are approved in the manner stated; and by the Act of June 21, 1906 (*34 Stat. 386*), these officers, in approving the plans and location of a dam, the construction of which is authorized by Congress, possess the power to impose such conditions and stipulations as they may deem necessary to protect the present and future interests of the United States.

In some of the western states, the ancient riparian doctrine yields to the rule of prior appropriation for mining and irrigation. The requirements of mining invoked this rule, which is rather of a "first come, first served" nature. For mining purposes; it is necessary to divert water from the natural course of its flow some distance to the mineral *in situ*. The first appropriator has the better right, and so on.* The protection of these rights gave rise to numerous regulations and customs, which have been recognized by the state courts. Similar conditions in the arid regions induced the abandonment of the riparian doctrine—although in some of the states there is a mixed application of the old and new rule.

The adjustment of all these rights is the subject of state control. The Federal Government is a bystander unless interference with navigation is threatened or unless, as it may be, it is a riparian proprietor or appropriator itself; in which latter event its interest is merely that of any private owner.

Conflicting water rights are fruitful sources of local litigation; flowage, diversion, nuisances, etc. Here, the state, through its courts, is the adjuster. Through its legislature, it may regulate just so far as regulation does not involve the abrogation of vested rights. The public interest is fundamental and the "private prop-

erty of riparian proprietors cannot be supposed to have deeper roots." (*Hudson Water Co. v. McCarter*, 209 U. S. 349.) Nevertheless, private ownership is often the stumbling block in the way of legislation that would promote the interests of the people as a whole, because the line where the state's police power, exercised without compensation, properly ends, and where its exercise of eminent domain, with compensation, must begin, is not always perspicuous. The circumstance of owning land bounded by a stream gives the owner an advantage—a right—in that which should be the property of all alike, and which in some states is declared to be the property of the state; as, for instance, in the Constitution of Wyoming:

The water of all natural streams, springs, lakes or other collections of still water, within the boundaries of the state, are [*sic*] hereby declared to be the property of the state.

The Constitutions of Colorado and North Dakota contain similar provisions, and the Constitutions of California and Washington declare the use of waters for irrigation, mining and manufacturing purposes to be a public use; but this is one of the very few subjects not covered by the Constitution of Oklahoma.

Yet even where declared to be "the property of the state," the appropriator of the water acquires a distinct title; not perhaps as a mere incident to the soil, as in the case of a riparian owner, but still a distinct usufructuary estate based upon the actual appropriation; a property right which may not be taken or damaged for public or private use without just compensation.

The same basic principle exists in the Australian Commonwealth of Victoria; but there it is carried out to its legitimate conclusion. No one may permanently divert water; a license is granted for a limited period. And no diversion is free. Every user pays for what he uses, the charges being apportioned to the amount diverted and the value of the diversion to the user. For the development of hydro-electric power, for instance, the annual charge is about five dollars per H. P. A large revenue is thus produced, relieving the general taxpayer. The justice of this plan is apparent; he who enjoys pays therefor, and he who has an equal right in the water but cannot use it, is indirectly the beneficiary of the rental paid by the user; for general taxation is reduced. Moreover, the user has an

economic reason for avoiding waste; he must pay for what he diverts. Every user is a conservator. During the last decade there has not been a single lawsuit over water rights in Victoria. Furthermore, the Commonwealth reserves the right at any time to apply the water to a paramount use whenever the necessity arises. Naturally there are no "vested rights" to figure largely in the matter of compensation. There is no such thing as a riparian right in this progressive British colony. On substantially all streams a frontage of from four to eight rods is reserved as public land. This solves the pollution problem and in other ways simplifies the conservation of the public's rights in the water.

As far as the rights of the American public in the free navigation of its streams are concerned, they are happily conserved because they are paramount and supersede any right in the private owner of the adjacent banks. But the country is now at the threshold of a wonderful development of its unused water power to be transmuted into electrical energy at the mill site, and thence transmitted hundreds of miles to a hundred uses: power, traction, lighting, heating, and the multifarious modes of employing this convenient form of energy. With this possibility of conversion and conduction, there is, at strategic points throughout the country, potential water power sufficient to replace every other form of power now in use in manufactures, transportation, and domestic economics. Of this, but a small traction is now utilized—about 5,300,000 H. P. Some 1,400,000 H. P. runs to waste over government dams. Far-sighted captains of industry, realizing what the next generation will bring forth—reduction in the fuel supply with its complement, an enhancement of cost—and anticipating the advancement that will come in the art of utilizing hydro-electric power, have already seized advantageous points, and even now a small group of "interests" controls a third of the present water-power production; that is, produces power the equivalent of that proportionate part.

With this portentous concentration of power production, the states, in part, must contend. In those states where, in the substantive law the waters are the property of the "state" or the "people," the problem may be more easily solved than in those older commonwealths where the mill sites are in individual ownership—if the interests of the public are to be conserved. This, and pre-

ceding generations, have realized the significance of monopoly in those things which are vital factors in the lives of all consumers, whether it be heat, light, food products, or transportation. Yet all these united must be multiplied to be tantamount in power to the monopolistic Colossus which is yet but a suckling, nurturing itself at the breast of its foster-parent, the public. For heat, light and transportation, and the power that turns the spindles and grinds the corn, will be the product of transmuted water power within the lifetime of our children.

While the state should promote the development of its resources and encourage enterprise in the individual, the superior right of all the citizens should be guarded by such stipulations and conditions in every grant of franchise as will prevent consolidation of control in a few and anything like perpetuity in enjoyment of this privilege. The life of a franchise should be limited in all cases, to a fixed term of years, say forty or fifty years, irrevocable save for breach of conditions, unless the state must take the water for a higher use in which event compensation must be paid. As the grant of a franchise proceeds from the many to a few who thus acquire special interests in the common property, the many should be recompensed by the payment of annual charges and by a limitation upon the price at which power may be sold.

While these things fall mainly within the scope of the state's power to legislate, the field of federal authority is much greater than its mere interest in navigation would suggest. Aside from the fact that in improving navigation on certain water courses, it develops incidentally a vast water power, it also has control of the location and construction of all dams across navigable streams, whether interstate or intrastate. Nor is this all; as the owner of lands bordering on a stream, it has all the rights of a riparian proprietor in those states where such rights are recognized; and, in its duty to conserve navigability of waterways, its jurisdiction is not necessarily limited to the navigable portions thereof, but may extend to the headwaters and those tributaries which supply or augment its flow. That is, if the diversion or appropriation to any inferior private or even public use of the waters of a tributary impairs or menaces the navigation of the main stream, Congress has power to check or regulate or prevent such use. No state may so legislate as to the appropriation of waters within its boundaries,

even of non-navigable tributaries which unite into a navigable water course, so as to destroy or interfere with the navigability of that water course in derogation of the interests of all the people of the United States. This was settled by the Supreme Court in *United States v. Rio Grande Dam & Irrigation Co.* (174 U. S. 690).

A notable instance of the exercise of the federal power is found in the creation of the California Debris Commission (27 Stat. 507), in 1893. The navigation of two rivers, each within the State of California, the Sacramento and the San Joaquin, was threatened, in part, practically destroyed by hydraulic mining operations carried on in the territory drained by their tributaries. Congress declared such mining to be unlawful, unless the persons desirous of engaging therein obtained a permit from the Debris Commission, and assented to be bound by federal law and regulation. The Commission had full power to prescribe rules, to locate debris reservoirs, impounding dams, storage sites in the tributaries, either for debris or for water, and to do all things needful to restore and maintain the navigability of said rivers, to deepen their channels, and even to protect their banks. These operations mainly affected the feeding streams, but the power of Congress nevertheless existed and was upheld by the Circuit Court of Appeals in *North Bloomfield Gravel Mining Co. v. United States* (99 Fed. Rep. 664). These were operations not necessarily in a stream, but by a stream, whereby silt and other debris were carried by the tributaries into the navigable rivers and therein deposited. The act not only affected those who contemplated the establishment of such mining, but also the owners of then existing impounding works. The court said:

"Congress has the power and authority to control commerce and navigation on the navigable portion of the Sacramento and San Joaquin Rivers and their tributaries, and to prevent any obstruction on such streams, or the performance of any act, by any person or persons which would tend in any manner to interfere with interstate or foreign commerce."

While the Federal Government is not authorized by the Constitution to create a water power for commercial purposes, although it undoubtedly has a right to do so for its own purposes, it is inevitable that in improving inland streams by a series of dams and locks that water power will thus be created. Indeed, nearly 1,400,000 H. P. is now running to waste over government dams,

constructed with no other view than that of aiding navigation. The government may not own the water, but it certainly owns the *power* it thus creates. Water power is not water; it is energy produced by the combination of running water and a suitable fall. Conceding that the *corpus*, the water itself even in a navigable stream, is the property of the state through which it passes, and that the Federal Government has no title to it, still it does enjoy the use and supreme control of it under its power to regulate commerce. In the use of it for a constitutional purpose, it may bring into existence that which was not there before—a form of energy. It owns what it produces and it may sell or lease the right to utilize its creature; and it would certainly be anomalous if it could not exact a consideration and impose a condition in making a sale or a lease. A sale is out of the question, for that would involve an investiture of rights which might later embarrass the government in the discharge of its duty respecting navigation. But the disposition and utilization of this power by the grant of a leasehold interest is not only a lawful, but a business-like exercise of federal power. Leases imply a termination of the lessee's interest at a definite time as well as a charge regularly to be paid. Just as I may impose conditions on my lessee restricting his use of my property or confining it in legitimate channels, so may the government restrict its grant in a manner to avoid monopoly. The charge it may impose may be devoted to general governmental purposes to the relief of taxation or be expended in the further development of navigation.

So, again, where the government by storage reservoirs, artificial or natural, expends money to conserve the flow of streams, it creates a condition of value in the production of power. By a natural storage reservoir about the headwaters of a stream, I mean a forest. Where the government has reserved a great forest for national purposes, expending money in its protection and the reforestation of its desolated areas, it is contributing as effectually to the perpetuity and uninterrupted development of power in a water course whose sources are protected by these national forests, as it would by the providence of artificial storage. The rivulets and creeks which spring from these forests unite to make in whole or part the navigable watercourse. A corporation is granted the right by the state legislature or by Congress to erect a dam on such a stream for the purpose of developing hydro-electric power. Under the

federal law, it may not proceed until the Secretary of War and the Chief of Engineers approve not only the location, but the plans. Under the Act of June 21, 1906, already noticed, these federal officers are authorized to impose such conditions and stipulations as they may deem "necessary to protect the present and future interests of the United States." This power may include the condition that suitable locks to conserve the navigability of the stream shall be constructed and maintained by the licensee. But "conditions and stipulations" need not and should not stop here. Not only should a definite term for the enjoyment of the privilege be fixed, but an annual charge should be exacted, apportioned, as in Australia, to the horse-power production or, better yet, on the basis of the converted power reckoned in kilowatt hours. Why not? A special privilege in what all the public possess rights is enjoyed by the beneficiary. The public indirectly contribute of their money to maintain the permanence and relative regularity of the stream-flow, on which power in part depends, through its maintenance and care of those great natural conservators of moisture, the forests. The effect may be great or slight, proximate or remote. But it is there—a tangible asset of measurable value to the producer of power. In proportion to its value, the charge is capable of adjustment.

Aside from this, another reason for an annual charge is suggested by the existence of the lock; and in a navigable stream blocked by a dam, a lock is a necessary part of the structure. In the discharge of its duty to regulate commerce, the government should not delegate its obligation to operate such a lock to the power producer. Congress representing the public and using its money must provide an operator to tend the lock and to expedite the transportation of commerce. The lock is there because the dam is there; the dam is there that an individual, a person or a corporation, may enjoy certain privileges in what, of right, belongs to the public. Should the public pay the cost of operating an artificial device for the passage of commerce-laden vessels, occasioned by the obstruction of a natural course for the special benefit of one? Should I pay the expense of a gatekeeper required by my gratuitous grant of a right of way to another across my premises? The charge is not only legitimate and within the power of Congress to impose, but it is right and proper that he who enjoys the public's property should render recompense exactly as he would to the private owner.

Where the Federal Government creates the power in whole or in part, there is little opposition to the imposition of charges. Despite the attitude of a recent Congress in passing an act conferring special privileges upon an individual in a certain navigable waterway in the West, without any provision as to the payment of an annual charge, after the President, in vetoing a similar measure, had announced that he would sign no bill that did not thus provide; the same Congress later conceded the point in a case where the development of the power itself is the direct result of the government's operation. The recent Act of March 3, 1909 (*Public, No. 317*), provides in part that the right to the flow of water, and riparian water power and other rights now or hereafter owned by the United States in the Saint Mary's river, Michigan, "shall be forever conserved for the benefit of the Government of the United States, primarily for the purposes of navigation and *incidentally for the purpose of having the water power developed*, either for the direct use of the United States, or by lease or other agreement, through the Secretary of War . . . *Provided*, That a just and reasonable compensation shall be paid for the use of all waters or water power now or hereafter owned," etc. The act limits the term of the lease to thirty years and provides for the readjustment of compensation at periods of ten years, and again, doubly to assure, states that no such rights shall be granted "without just and adequate compensation."

The act expresses what I urge is well within the constitutional field of federal legislation: the right to dispose by lease of a water power created by the United States in the course of operations having the primary purpose of improving or conserving navigation. The language is a little startling in its ingenuous avowal that a part of the purpose, although incidental, is "having the water power developed." The Congress has no authority deliberately to create a water power for the purpose of disposing of it by lease; but if in the discharge of its duty to aid navigation, it unavoidably brings into existence such a power, it has the right of any private owner in disposing of its property, subject always to the superior right of the public in the free navigation of the stream. The Congress may not *purposely* develop a water power save for national needs; but it may purposely do things in aid of navigation which it well knows will incidentally result in the creation of such a power.

It may not build a storage reservoir for the purpose of maintaining the stability of water power; but it may do so under the guise of regulating commerce. It may not acquire from private owners a great forest about the headwaters of a stream for the purpose of conserving stream flow in aid of power development; but it has plenary authority so to act if the avowed purpose and certain effect are to assist navigation. Many peculiar things are done in the name of liberty; a few have been done in the name of the Constitution.

But there is another and a larger class of improvements; a class including water power developed in a navigable stream, under a federal or local franchise, with the consent of the Federal Government. Under the law already noticed, the owner of the franchise may not build his dam until the Secretary of War and the Chief of Engineers have approved the location as well as the plans; and in the act of approval they may impose conditions and stipulations "necessary to protect the present and future interests of the United States," where the authority to build the dam proceeds from Congress. In these instances, the Government does not build the dam or create the power. Perhaps it has done naught in aid of navigation on that stream. The water, in theory, is the property of the state and not of the nation. The fall is provided by nature and by the work of man—the individual rather than the public. The two elements which make the power are there without the aid of the Federal Government; the latter owns nothing—merely owes a duty. How, then, can it impose a charge? Yet President Roosevelt, in two sturdily patriotic messages vetoing bills granting such franchises, declared that he would sign no bill unless the same provided, among other things, that "There should be a license fee or charge which, though small or nominal at the outset, can in the future be adjusted so as to secure a control in the interest of the public."

In certain quarters, it is denied that the United States has power to impose a charge in such a case. It is argued that the charge would be either a direct tax or in the nature of an impost or excise tax. If the former, it must be apportioned among the states rather than levied directly by the Federal Government itself; if the latter, it must be uniformly levied on every dam and water power in the entire country.

The latter objection, however, is not altogether sound. Uni-

formity, in the sense of the constitutional provision respecting taxation, means a geographical uniformity, the tax operating on all similar properties. That is, in every instance where the Federal Government approves the location and plans of a dam, thereby authorizing its construction, whether in a navigable waterway east, west, north or south, the tax must be uniformly laid. But a water power developed on a non-navigable stream, without let or license from the National Government, would stand in another category. Any rule of conformity would not necessarily involve the inclusion of such dams or water power privileges; it would merely require the levy of such a tax upon every power privilege similarly authorized or confirmed by the Federal Government.

Recurring to the act of Congress establishing the California Debris Commission, already noticed in part, we find provisions for a "tax" which applies with no "geographical uniformity" throughout the country, but is restricted in operation to only a part of the State of California.

Briefly: The hydraulic process in mining may not be employed about the tributaries of certain navigable streams in that state without permit from the commission, the permit to be granted upon petition and hearing. The license, if granted by a majority of the board, embodies directions and specifications in detail as to the manner in which operations may proceed; what restraining or impounding works shall be built and maintained, and where they shall be located; "and in general set forth such further requirements and safeguards as will protect the public interests and prevent injury to the said navigable rivers, and the lands adjacent thereto, with such further conditions and limitations as will observe all the provisions of this act in relation to the working thereof *and the payment of taxes on the gross proceeds of the same*. *Provided*, That all expense incurred in complying with said order shall be borne by the owner or owners of such mine or mines." (*Act of March 1, 1893, Sec. 13.*) The "taxes on the gross proceeds" are imposed by the twenty-third section of the act, which provides that the operators of the mines affected by the act "shall pay a tax of three per centum on the gross proceeds" of the mine so worked, said "tax" to be ascertained and paid in accordance with regulations to be adopted by the Secretary of the Treasury and to be paid into the Federal treasury to the credit of the "Debris Fund," which shall

be expended by said commission under the supervision of the Chief of Engineers and direction of the Secretary of War in the construction and maintenance of restraining works and settling reservoirs in aid of the purpose Congress had in mind in passing the act.

This act had been held to be constitutional, as already noted. Yet in terms it provides for the collection of a "tax" which is neither "apportioned" among the states nor is levied by any rule of uniformity. Rather than a general excise law, it is one of special and circumscribed application. Still, the charge imposed is christened a "tax." If it were a tax, there can be little doubt of the unconstitutionality of the act. Wherein does such a "tax" differ from that to be charged upon the grant of special privileges for power purposes in a navigable stream? Both find their reason for existence in the conservation of navigation, although the miners may be required to pay for privileges connected directly with non-navigable intra-state tributaries, while the power producers operate directly in the navigable stream itself.

But the charge is not a "tax" in the constitutional sense; it is of the nature of a license—the according of a special right or privilege to do a thing, which, without permission, would be unlawful. It is leave and liberty enjoyed as a matter of indulgence at the will of the Federal Government. For, if the latter were to withhold permission, the dam might not be erected. And, in this connection, it may now be noted that there is no power to compel the Secretary of War and the Chief of Engineers to approve any location or plan. The writ of mandamus would not lie to compel approval, for the function of these officers is not ministerial, but entirely discretionary. Congress placed no limitation upon their power to impose conditions and stipulations as to dams it authorizes, except that the aim must be to protect the present and future interests of the United States; the officers to be judges of the necessity and wisdom of the terms.

The power to charge for a special privilege is not necessarily an exercise of the power to tax. It is rather the right to exact a *quid pro quo*. Public interests are bound to be jeopardized, even though certain advantages to a locality accrue from the establishment of the power plant. One has already been suggested—the operation of a lock; for the very fact that gives the Federal Government

any measure of control—viz., the navigability of the stream—involves the conservation of navigation through artificial means. The charge imposed liquidates this that otherwise would be a burden in the nature of a tax upon the public. Aside from this, another potential element of cost to the public is involved—the possibility that the Government may be obliged to remove the obstruction caused by the building of the dam at its own cost. Ordinarily this has been guarded against by the exaction of a bond in a large penal sum, the burden of carrying which is an annual charge upon the owners of the franchise. What vital objection can there be to the adoption of a plan whereby the licensee, in lieu of annual tribute to a bonding company, pays such premiums into the federal treasury—a measure of insurance against the loss that might be occasioned were the franchise holder bankrupt and the needs of navigation were to require the removal of the dam? The fund created by the payment of these charges may be either devoted directly to the betterment of navigation, particularly in the removal of obstructions, or turned into the Treasury as a part of the general fund, indirectly serving the same purpose by relieving the taxpayer. If the Federal Government has the power to withhold approval, it has power to bestow approval upon such terms as it may deem necessary to impose in order to protect the present or future interests of the United States. If it has the power to exact a bond to protect the public against loss when, in the interest of navigation, it becomes necessary to remove the obstruction, it has the power to create a fund for the same purpose. If the public in general contribute to that fund, their contributions are in the nature of a tax. If, however, the special beneficiaries of the granted permission contribute to establish such a fund, it is not a tax, but a license charge, the sole similarity being that both are a rendering to Cæsar of the things that are Cæsar's.

Moreover, it is entirely competent for Congress to insist that no privileges affecting navigable streams shall be granted to any corporation unless said corporation operates under a federal charter. The United States has authority to create a corporation as a means of carrying into effect any of its sovereign powers. (*McCulloch v. Maryland*, 4 Wheat. 316, 411.) Such a corporation may be authorized to construct a dam and lock in aid of navigation, and the incidentally developed power may be disposed of by the creature as well as by the sovereign itself—under such terms and conditions as

Congress sees fit to impose. This would bring every power company using the navigable waters of the nation directly under the visitatorial control of a federal commission, the Interstate Commerce Commission, for instance, with power to regulate charges and to prevent the formation of unlawful or monopolistic combinations. It is only natural that such companies should receive their corporate animation from the power which controls and regulates interstate commerce, because the ulterior purpose of their being, thus created, would be the production and transmission of power, in itself a feature of commerce which, in its development and utilization, will acknowledge no state bounds. In the incorporation of such companies, coupled with the grant of these privileges in the waterways of the nation, the imposition of charges, the tribute that the creature pays to its creator, will follow easily, logically, and lawfully.

In conclusion: With non-navigable streams, three parties are concerned, (1) the riparian, or appropriator, who has a peculiar property interest therein, and (2) the state, which may have certain police duties to perform in the conservation of public welfare, and (3) the Federal Government, whose interest is strictly confined to such streams as are tributaries of a navigable watercourse and then only when the navigability of the latter is threatened. With the single exception just noted, the state has exclusive jurisdiction in the realm of legislative activities affecting such streams.

With navigable streams, the same parties are concerned, but in reverse order: (1) the United States, with the paramount duty of improving and maintaining navigation, preserving a superior use in the water, but without ownership thereof or of the subjacent or adjacent soil except in the occasional instance of riparian proprietorship; (2), the state, whose interest is a derivative of its sovereignty, holding its property therein as trustee for all public uses save navigation, subrogated to the superior rights of the Federal Government and of such rights as the riparian owner or appropriator may possess; and (3) the riparian owner or appropriator himself. The National Government has legislative control of all matters affecting navigation primarily and, to the extent already discussed, of the power development incidentally, when the latter affects the former; and in theory it is not easy to divorce the twain. All else is within the scope of state legislation.

The federal power proceeds from its obligation to regulate com-

merce, of which navigation is but a part. The prospective power development through hydro-electric agencies will be the solution of many existing problems involving the transportation of interstate commerce. The fundamental physical power, to be changed into an easily transmissible form of energy, will, in the future, be found in the greater waterways of the country—the navigable streams. The requirements of navigation and power development must be nicely adjusted; the latter not to interfere with the former; the former not to prevent the latter. The state may not oust the jurisdiction of the Federal Government in the regulation of the former. If the latter is exclusively a matter of state regulation, there will be conflict in adjustment. The public welfare of the whole nation is involved; not that of one state. Any uniform rule in the grant of power franchises which will abort monopoly by restricting the term of the grant to a definite time coupled with the exaction of a charge adjustable occasionally as the country's welfare may demand, and with a provision for revocation in the event of any attempted combination of interests which would effect a restraint of trade, must, and I believe constitutionally can, find its origin in an act of Congress.

THE NECESSITY FOR STATE OR FEDERAL REGULATION OF WATER POWER DEVELOPMENT

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A century and a quarter ago, a law was passed in the State of Vermont fixing the rates of toll that might be charged by owners of water-power grist mills for grinding grain. The law which thus regulated the conduct of a private business was enacted while Vermont was an independent self-governing commonwealth, before its entrance into the Union; and it remained on the statute books until a few years ago. The conditions of society and of industry when the law was enacted were in sharp contrast to those of the present day; yet the conditions which caused the passage of the law were not dissimilar to those on which legislation of a similar sort is to-day based.

The settlers in those thinly-populated pioneer communities were dependent on the grist mill to convert the grain their fields produced into usable form. But grist mills were very few and far between, and roads were often mere rough trails through the forest. The owner of one of these pioneer grist mills who took advantage of the settlers' necessity, to charge "what the traffic would bear," represented the public utility monopoly of that day.

It was to meet the extortion practiced by such eighteenth-century monopolies, doubtless, that the Vermont law was passed. It is noteworthy, however, that after this law had been on the statute books for more than a generation, an amendment was passed exempting grist mills operated by steam power. Apparently it was recognized that the public had an inherent right to regulate industries carried on by the use of water power. It is true that the English law of riparian rights was in force, and that the owner of a "mill privilege," as it was called, held title to it as to any other piece of real estate. Nevertheless, there seems to have been appreciation of the fact that water power was a gift of nature to the whole race, and that even though one held title to such a gift, he was subject in its use to legal regulation.

The conditions which brought about this early case of legal regulation of water-power plants soon passed away. The development of the steam engine put water power for many years in the background. It became much cheaper to develop steam power on the site where it was needed, than to locate the factory beside the waterfall. But in the late '80's, the application of electricity to industrial uses worked a revolution in the use of power. The electric light, the electric railway and the electro-chemical processes created new demands for power in enormous quantities. Coincidentally came electric power transmission, making it possible to develop power at the waterfall and utilize it at the mine, the mill or the electric distributing station, distant a dozen or fifty or a hundred or more miles away.

An enormous impetus was thereby given to the use of water power, and, at the same time, modern engineering came in to revolutionize the machinery and the methods by which flowing streams are harnessed to the service of man. The millwright of a century or even a half century ago knew no other method of water-power development than the mill dam in the river bed and the wheel or turbine beside it. Where the natural fall of the stream was located, there the power had to be utilized. Thus the owner of the land around a natural waterfall owned all that was necessary in order to utilize the fall for power.

But modern methods of dam construction and conduit construction have revolutionized this condition. Water may be taken from a stream to-day, led in artificial channels for miles away from its natural course, stored in artificial lakes, used for power development at some site remote from any stream and finally discharged, perhaps, in a different watershed from that in which it originally flowed. Thus in the development of the water power of a river to-day on a broad and comprehensive scale, the old law of riparian rights, which gives to each owner of the land on a river's banks a right to the fall that occurs in flowing past his land, is often a hindrance to the largest and most economical commercial development.

And there is a still more potent reason for this. That reason is the enormous influence of water storage upon water power. The old time water-power plant had its capacity fixed by the flow of the stream in dry weather. The torrents that flowed past in the flood

season were of no use, but on the contrary a source of great danger and frequent destruction. The only storage of the old-time mill was the little "mill-pond" above its own dam.

The variation in volume between a river at flood and at lowest water is enormous. In the arid regions of the far West, many streams, which are of large size when rain falls, become entirely dry at times. Even in the humid sections of the East, rivers vary enormously in their stage. The New York State Water Supply Commission in its fourth annual report, dated February 1, 1908, shows that the Hudson River, flowing out of the well-watered Adirondack region, with many lakes at its sources, has recorded a variation of 100 to 1 between the greatest and least flow at Mechanicville, or from 70,000 cubic feet per second in the flood of 1869 to 700 feet per second in the drought of 1908. Taking the average monthly discharge, the greatest was 30,900 cubic feet and the least was 1600 cubic feet. The same authority shows the variation of the flow of the Delaware River to be in the ratio of 375 to 1. The maximum flow at Port Jervis is 150,000 cubic feet per second. The least flow at the same point is 400 cubic feet per second.

Now, in the modern development of water-power plants what the engineer first looks to is the low-water flow and the extent to which this can be supplemented by storage. In the smaller streams it has often been possible by private enterprise to create storage basins and closely regulate the flow of the stream. There are rivers in the manufacturing districts of Massachusetts and Rhode Island whose flow has been almost completely equalized by storage, and whose available water power has been thereby multiplied many fold.

And this brings us to another great contrast between the old-time water-power development and that of the present day. Up to very recent times water-power development was confined almost wholly to small streams, many of them mere brooks. There was no demand for power to justify the use of large streams and no means for harnessing them had the demand existed. But to-day the largest rivers are being set to work. Power is developed by giant wheels generating ten thousand or more horse power on a single shaft. Cataracts and rapids which were supposed a generation ago to be beyond the power of man to control have been subdued. All along the Atlantic coast from Maine to Alabama, the largest rivers have been set at work turning spindles, lighting cities and drawing

railway cars. Niagara itself has been set to work and nearly half a million useful horse power are being produced by water drawn from the upper river, yet the diminution of flow over the precipice is too small to be perceptible.

The amount of power available on these great rivers can be multiplied many fold by storage; but the creation of that storage can be accomplished only through legislation of a broad and radical sort, and legislation which can only be justified with public interests and not private interests as the beneficiary.

Attention may also be directed to the relation between the use of water for power and its use for other public purposes. The water flowing in the nation's streams and rivers to-day is used not only for power development, but for the supply of towns and cities, for irrigation and for navigation. Further than this the great problem of river control, of protection from devastating floods and of the drainage of great areas of fertile swamp lands is intimately connected with the matter of water-power development. All these public uses of our streams and rivers were almost unknown when the existing law of riparian rights was developed in the narrow island of Great Britain; and, until recent years, there has been no serious conflict between these various interests. The streams on which water powers were developed, for example, were too small for navigation. The amount of water required for city supply was so small that the extinguishment of the rights of water-power owners was no serious matter.

These conditions exist no longer. Cities which seek to increase their water supply find themselves compelled to pay millions of dollars in damages for water-power plants and even for water powers unused and undeveloped. A free gift of nature—the potential power in a falling stream at a certain point—is held to be private property which must be appraised and paid for by the public before it has the right to interfere with it, even when the private owner has made no use of this gift, but has held it like Æsop's "dog-in-a-manger." It seems surely evident that the law which makes such gifts of nature private property was the outgrowth of conditions vastly different from those which exist to-day.

It is a curious illustration of our blind adherence to past traditions and written laws that in England itself ways have been found to escape from some of the rigorous conditions which we still impose

on ourselves as a result of our inheritance. An English city, wishing to take water from a certain district to supply its needs, does not have to condemn and purchase at exorbitant figures all the water powers fed by the impounded streams as an American city is compelled to do. The English city simply turns, from the reservoirs which it builds, enough water into the streams to maintain the *low-water* flow unimpaired. The water-power owner has as much water for his mill as before and is further benefited by relief from the danger of floods.

Still more remarkable are the fetters with which we bind and hamper enterprises for the public benefit. Even when an American city has gone to vast expense in securing a water supply and has condemned and purchased water powers for that purpose, it has been claimed that the city could not itself utilize and benefit by the water power which was created as an incidental to its storage of water. Fortunately this perversion of laws, made supposably for the public interest, to serve private ends has generally been overruled.

In the development of water for irrigation purposes there has been comparatively little conflict thus far between private owners of water-power rights and the public use for irrigation. This has been partly due to the fortunate fact that most of the water-power sites in the arid region of the West still remained in Government ownership when the Government irrigation work was undertaken.

In the reclamation work carried on by the Government in the arid West, water power is developed in many cases as an adjunct to the irrigation works and is often of great value, as many of these reclamation projects are located where fuel is expensive. The revenue gained from the sale of such power is applied towards paying the cost of the works.

It is in connection with the use of rivers for navigation that the necessity for public control of water-power development has been in recent months most forcibly brought home to the public. The control by the Federal Government of navigable rivers makes it necessary to secure from the Federal authorities permission to dam or divert the waters of any stream on which navigation may be carried on. Further than this, the work undertaken by the Government itself in improving rivers for navigation by building dams and locks upon them often creates valuable water powers.

In the past, such water powers have been at times turned over to private parties at a nominal rental, and the location of such powers and the fact that in the design of the works navigation and not power development has been the controlling idea, has often hindered the rental of such powers on a remunerative basis.

These conditions, however, are sure to be changed. The Federal Government is likely to undertake navigation improvements on some of the chief rivers and in connection therewith it is almost certain to embark on the great task of the regulation of interstate streams for the checking of floods and maintenance of the low-water flow. The result of such works will be the creation of many new sites for water-power plants and multiplication of the available power at many sites where water-power plants now exist. That private interests will seek to reap the benefit from this expenditure of public funds is certain; and they will make a hard fight to this end, for the prize is a rich one. The equities of the case are so clear, however, that these interests seem doomed to defeat. Where any public body—be it the national government, or a state or a city—creates a valuable water power in the course of its work for water supply, for irrigation, for navigation or for river control, that value belongs of right to the body that creates it.

To establish this principle is of enormous importance. The way is open for carrying out public works of vast value to the people, provided the benefit from such works in the way of water-power development can be made a public asset to bear part or all of the burden of cost. And further, if this principle is established, then works can be planned and carried out for the public benefit where the creation of power is a primary consideration.

The value of the undeveloped water powers of the country and the public rights therein, have been brought forcibly home to the people by President Roosevelt in connection with congressional legislation granting franchises for the use of such powers. On March 13, 1908, President Roosevelt wrote a letter to the Senate Committee on Commerce, in which he called attention to the frequent failure to guard the public interest in the grant by Congress of water rights to private companies and said:

"The effect of granting privileges such as are conferred by these bills, as I said in a recent message, taken together with rights already acquired under state laws, would be to give away properties of enormous value.

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Through lack of foresight we have formed the habit of granting without compensation extremely valuable rights, amounting to monopolies, on navigable streams and on the public domain. The repurchase at great expense of water rights thus carelessly given away without return has already begun in the East, and before long will be necessary in the West also. No rights involving water power should be granted to any corporation in perpetuity, but only for a length of time sufficient to allow them to conduct their business profitably. A reasonable charge should, of course, be made for valuable rights and privileges which they obtain from the National Government. The values for which this charge is made will ultimately, through the natural growth and orderly development of our population and industries, reach enormous amounts. A fair share of the increase should be safeguarded for the benefit of the people, from whose labor it springs."

This was followed a month later by his veto of a bill relating to a franchise for a dam on the Rainy River, Minnesota, in which he laid down the principles that should control in the grant by the Government of such franchises. He declared that such grants should provide for some license fee or compensation, which, though small at the outset, can in future be adjusted so as to secure control in the interest of the public, and also that the grant should be for some limited term, "leaving to future generations the power or authority to renew or extend the concession in accordance with the conditions which may prevail at that time."

In a second message, in January, 1909, vetoing a bill permitting the construction of a dam on the James River, in Missouri, President Roosevelt again called public attention to the duty of Congress to protect the rights of the public in undeveloped water powers and showed how rapidly the great power plants are passing under the control of large financial interests. Information collected by the Bureau of Corporations showed that thirteen large concerns owned or largely controlled water-power or advantageous power sites equal to nearly one-third of the total water power now in use. Commenting on this condition, President Roosevelt said:

"The people of the country are threatened by a monopoly far more powerful, because in far closer touch with their domestic and industrial life, than anything known to our experience. A single generation will see the exhaustion of our natural resources of oil and gas and such a rise in the price of coal as will make the price of electrically transmitted water power a controlling factor in transportation, in manufacturing, and in household lighting and heating. Our water power alone, if fully developed and

wisely used, is probably sufficient for our present transportation, industrial, municipal and domestic needs. Most of it is undeveloped and is still in national or state control.

"To give away, without conditions, this, one of the greatest of our resources, would be an act of folly. If we are guilty of it, our children will be forced to pay an annual return upon a capitalization based upon the highest prices which 'the traffic will bear.' They will find themselves face to face with powerful interests entrenched behind the doctrine of 'vested rights' and strengthened by every defense which money can buy and the ingenuity of able corporation lawyers can devise. Long before that time they may, and very probably will, have become a consolidated interest, controlled from the great financial centres, dictating the terms upon which the citizen can conduct his business or earn his livelihood, and not amenable to the wholesome check of local opinion."

This declaration by the President received almost unanimous approval in the public press; but it encountered the bitter opposition of those interested in water-power development enterprises. These people, and those who speak for them on the floor of Congress and elsewhere, maintain that the water powers in question are as much private property as the land itself and that the Federal Government has no right to go one step beyond the protection of the interests of navigation. They deny the right of the public to share any part of the profit from the development of such powers by the imposition of licenses, and aver that even if the public has a claim upon the power because of its being a free gift of nature, that right belongs to the separate states and not to the nation.

There is, indeed, much to be said in support of the latter view, particularly where the older states are concerned; but it is noteworthy that the interests engaged in water-power development are as unwilling to admit the claims of the states themselves as of the nation. A notable example is found in the state of New York, where Governor Hughes in his first message called attention to the potential value of the state's undeveloped water powers and urged that: "they should be preserved and held for the benefit of all the people and should not be surrendered to private interest." Following out this policy, in 1907 Governor Hughes vetoed a bill granting a franchise for power development on the St. Lawrence River and was successful in securing a revision of the law by which the company receiving the franchise is to pay a substantial annual rental into the state treasury.

It may be of interest to see what would be the logical outcome if we were to accept the claims of those who would limit the Federal Government to the control of navigation interests solely. Suppose it to be established that the Federal Government and its officials are limited strictly to the use of rivers for navigation. Manifestly, then, all work done by the Federal Government for river improvement must be done with this sole end in view—as indeed it has for the most part been done in the past. The use of a river to create power, to irrigate farms or even to supply a city with potable water as well as the opportunity to restrain its floods and maintain its flow unimpaired must all take second place to the use of the streams for navigation.

Now, as a matter of fact, the use of a river for navigation is its least valuable use. All other uses confer greater benefit upon the public. Manifestly, then, it is against public policy to confine the Federal Government's functions in the treatment of rivers to navigation solely. Federal action for the control of our great rivers is far more needed and would be far more beneficial for water-power development and for regulation of the volume of flow than for navigation.

But if the theory of the defenders of private water rights holds good, the least beneficial use of our streams must take precedence over all others and we shall see such absurdities as the taking of water from streams for public water supply condemned because of injury to navigation.

In the older states of the East, the right and duty of the states to control water-power development within their borders is rapidly being established. The State of New York leads all others in water-power resources. The 1909 report of the State Water Supply Commission showed 828,784 horse power already developed by water in New York. Step by step, by the logic of necessity, the state has been forced toward the policy of state control. The problem of flood prevention, of water supply to the state canal system, of protection of cities from water famine in drought and of the best development of the vast water powers of the state still unharnessed all conspire to force the state itself to undertake the work. For years state commissions have been studying the subject. It has been attempted to control a river's flow and develop its water power by assessing the benefits upon all the riparian owners affected, including

cities, counties and other public bodies. It was found impossible to finance the work so planned.

The latest report of the State Water Supply Commission comes out strongly for state control and it summarizes the "Reasons for State Control" as follows:

"Aside from the need so emphatically expressed by Governor Hughes of conserving this resource to the use of all the people, there are reasons why the state, which has a far wider scope than any lesser authority, could more advantageously supervise the development and administration of its rivers. By means of a comprehensive policy, taking into consideration present and future development of all parts of every stream, the state can control hydraulic development step by step as conditions demand and eventually realize the most complete and economic utilization possible.

"Development by private enterprise, on the other hand, involves necessary limitations and wasteful methods. Individuals or corporations cannot exercise the necessary power of condemnation required for the creation of water storage. Co-operation between a number of mill owners for the purpose of river control is peculiarly difficult to arrange and the benefits hard to apportion to the satisfaction of all. As a result private enterprise seeks conditions promising the greatest immediate return on the capital invested. This frequently involves the development of only the major portion or 'cream' of a given fall, leaving the remaining portions above and below undeveloped, while effectually estopping their development by any other company or even by the state.

"On the other hand, the state, in such a case, having the financial ability to make great expenditures, and to wait many years, if necessary, for the return on its outlay, could build the works necessary to utilize the entire fall of the river without waste. Such development could be carried forward in sections, as a market for the controlled water or for the developed power might arise from time to time. The essential point is that the development be in accordance with a pre-established plan.

"Such foresight on the part of the state in the control and development of its rivers would also provide for the location of mills, railroads and other industrial structures in such a way as not to interfere with the eventual construction of the necessary storage works. This is an important factor. Had the policy of water-power development by the state for its benefit and the welfare of the people been established earlier as one of the fixed purposes of the state, there is but little doubt that all of the improvements at Tupper Lake Junction could have been as well placed with slight, if any, additional cost to the individuals and corporations concerned, outside the area of possible state work. If the railroad companies and lumbermen had so co-operated in locating the line of the road, its switches, roundhouses, etc., and in selecting sites of the great lumber mills and other interests, a great reservoir which would benefit all of these institutions and many more could be

constructed for a few thousand dollars where it now will take as many millions. . . .

"It thus appears that the widest possible distribution of benefit will result only when the state itself undertakes the supervision of the construction of storage reservoirs. Such constructions under private enterprise are peculiarly apt to be unsatisfactory in every way from the public point of view."

Another important reason for Government control of water-power development is that public safety may be secured. Experience has abundantly demonstrated that when private enterprise wholly without public control attempts to deal with natural waterways, there will be many cases of incompetence and neglect with consequent disaster. Of the terrible casualties which such incompetence can cause, it is sufficient to refer to the Mill River catastrophe in Massachusetts; to the Johnstown flood in Pennsylvania, and to the breach in the banks of the lower Colorado River which came so near flooding and destroying for a century to come the possibilities of a great undeveloped region in the far southwest.

These and similar disasters furnish ample proof that private interests cannot safely be allowed to tamper with the water courses of a nation, and that any work done upon such streams should be under such supervision as will guard the public interests and the public safety. It is noteworthy that this fact has been recognized and made the basis of legislation in the smallest state of the Union. Rhode Island has for years had a Commissioner of Dams and Reservoirs, charged with the supervision of all structures erected to impound natural waters.

It is true that thus far the actual development of water power in this country is almost wholly in the hands of private enterprise. A few cities have developed water-power plants for municipal lighting, notably Chicago, which, in connection with its great drainage canal, has developed a large water power. Illinois is to undertake a \$20,000,000 work for navigation within its borders with the expectation that the water power thereby developed will be of such value as to repay the entire outlay. Los Angeles, on the 240-mile conduit which it is building for a water supply, will develop a large amount of power. It may be said, however, that direct state work in the development of water power is still in the future.

In other countries, however, the state control and utilization of water power has proceeded much farther than in our own avowedly

democratic country. In France, in Switzerland, in Italy we find great strides being made to secure for the people at large the benefit from water-power development and to restrict and limit the rights which the owners of lands adjacent to a waterfall may exercise. In Switzerland particularly, with its wealth of water power, the bulk of the water-power development has been done by cities and cantons for their own use.

Our own law of riparian rights, by which the owner of land on a river's bank has thereby rights to the use of its waters, we obtained from our mother country, England, and in England to-day that law is still unquestioned. The reason is easily seen. British water powers are all trivial in size and in commercial importance. There is not the slightest reason why they should not be left in private hands.

Far different is the situation in the English colonies. In Australia water is a precious commodity. In the colony of New South Wales the Government retains the ownership of a strip of land sixty-six feet wide along all waterfronts, and thereby extinguishes all riparian rights which would interfere with the public use of the rivers for power, for irrigation, for water supply, and even for fishing.

Not long since, the writer received a letter from a well-known American engineer, who has held high position in both state and federal service, and who is now in charge of important work in Australia. Contrasting the Australian treatment of water rights and our own, the writer of this letter remarks:

"All over the West water is going into the control of syndicates and trusts, and in the East the water power which ought to be treasured as a public resource to give its benefits to all is passing into the ownership of the predatory stock jobber and the people at large derive no benefit from it whatever.

"It is a prodigal, blind, unpatriotic notion along every line which has to do with public resources or the public good. When are we to wake up?"

But we do not need to go to the antipodes to find examples of radical treatment of water-power monopolies. Our own near neighbor, Canada, in its chief province, Ontario, has already established a Government Commission to deal with this problem. That commission made an exhaustive investigation to determine the actual

cost of water-power development and of electric transmission. Armed with this data, it was able to purchase power on reasonable terms at wholesale from one of the companies which has developed Niagara power on a large scale. The commission is itself undertaking the distribution and sale of that power to various cities in western Ontario.

Two alternatives are before the people of the United States. The first is to permit the water-power resources of the nation to be exploited solely by private enterprise and for private enrichment. Such a course means either that only a small percentage of the possible power can be developed, or that state or national funds must be expended on the work of river regulation and the largest share of the benefit will be reaped by the water-power syndicates. It is true that after a lapse of years the rates charged by private water-power companies may be subject to regulation by law, but one recoils before the long vista of agitation, legislation and litigation which such a course would make necessary.

Is there not a better way to protect the interests and property rights of the public in this great national resource? The other alternative is that better way. The public, through state or federal authorities, should assert its rights to control all undeveloped water powers as well as the increase of power which may be brought about at developed power plants through water storage. Private property owners must, of course, be justly treated; but where their rights have to be extinguished by condemnation, it should be at a really fair value and not at the exaggerated valuation often placed on water-power plants. For it should be understood that over a large part of the eastern United States, where cheap coal is available, the cost of steam power has been brought to so low a point in recent years that water power has to be developed at very low cost to enable it to successfully compete with steam.

Yet this, it must be remembered, is a passing condition. The coming exhaustion of our stores of mineral fuel is certain to be reflected in higher prices for coal and consequently higher cost of steam power before the present generation has passed away. To the next generation the "white coal" of the waterfall will be as valuable here as it is now in Switzerland or Italy. We may therefore readily preserve the benefit of this great natural resource to future generations and at the same time give full scope to private

enterprise and energy. Let the government, state or federal, supervise the development of water powers as a part of the large work of river regulation and control. Let it retain the title to our great water-power resources, granting franchises to private companies to use the power for limited terms of years under proper restrictions and with suitable rates of compensation.

Only by the adoption of such a policy can the great water-power resources of the nation be effectively developed. Only by such a policy can the great value of these resources be conserved for the people as a whole instead of exploited for the enrichment of the few.

FEDERAL CONTROL OF WATER POWER IN SWITZERLAND

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On October 24 and 25, 1908, by a vote of 292,997 to 52,180, the people of Switzerland adopted an amendment to the Federal Constitution which gives to the Swiss Federal Government the supervision of the utilization of water power. The text of this amendment is as follows :

"ARTICLE 24b. The Union has supervision over the development of water powers.

"The Federal Congress shall regulate the disposal and terms of water-right concessions, as well as the transmission and delivery of electrical energy, so far as the protection of public interests and the proper development of these resources require such regulation.

"Wherever Federal law does not regulate the terms of the water-right concessions, the disposal of these concessions, as well as the determination and collection of taxes and fees for their use is under the jurisdiction of the Cantons. But this regulation by the Cantons shall not be so onerous as to discourage the development of water powers.

"In cases where water power is developed on streams which touch upon the territory of several Cantons, or upon the National boundary, the disposal of the concessions and the determination of the taxes and fees to be collected by the Cantons will rest with the Union, after hearings have been given to the interested Cantons.

"The delivery abroad of energy developed from water power requires the consent of the Federal Council.

"The provisions of the Federal law apply also to the already existing water-right concessions, unless exception is expressly made."

It is now fifteen years since the question of giving to the Union jurisdiction over the utilization of water power was first agitated in the Swiss Congress. The history of the effort to secure the necessary legislation, down to the adoption of the new amendment, is of great interest in the United States, where the equitable use of water power is in the forefront among the problems dealing with the conservation of natural resources.

When the Federal regulation of water power was first agitated in Switzerland, the utilization of water power was in the hands of the Cantons, except for the provisions of Articles 23 and 24 of the Federal Constitution, which had some distant bearing on the subject. Article 23 gave the Union the right of expropriation, for the purpose of establishing or maintaining public works in the interest of the Swiss Republic. Article 24 gave the Union the supreme control over the water and forest police in the mountainous district of the country, and was meant to safeguard the mountain streams and to aid in forest planting about their sources.

In 1894 the "Frei Land Company," an industrial organization, petitioned the Federal authorities that the Constitution be amended so as to make all water powers not yet utilized the property of the Union, and to make their exploitation subject to Federal control. The Executive Council called in experts to consider this petition, and consulted the cantonal governments. On June 4, 1894, it reported to Congress adversely upon the petition, opposing it on the ground that it tended to create a state monopoly of water powers. The Council also made certain recommendations with regard to future legislation by the Cantons, and reserved the right to propose some new bill dealing with inter-cantonal relations in the establishment of hydro-electric projects.

So the matter rested until 1898, when a resolution was offered in Congress which proposed not only that the inter-cantonal relations in establishment of hydro-electrical projects be regulated, but that deficient cantonal laws be supplemented, and the Union be empowered to supervise the erection of hydraulic works.

In 1901 Congress requested the Executive Council to examine into the advisability of electrifying the Swiss railways.

In 1902 a resolution was offered, which pointed out the danger of permitting private interests to acquire, more or less without restriction, such water powers as might be needed in electrifying the railways. This resolution enumerated a number of points requiring legislative regulation, and laid special stress upon the duty of safeguarding the public interests in the utilization of water power. It was adopted in 1904.

In 1906 resort was had to the initiative. An initiative petition bearing 95,290 signatures urged an amendment of the Constitution which would give the Union power to regulate the utilization of

water powers and the transmission and delivery of the energy produced therefrom, leaving to the Cantons and to those legally authorized by them the right to levy the taxes and fees to be paid for the use of the power. The amendment also gave to the Executive Council the power to sell or lease water powers to foreign corporations. The text of the initiative amendment was as follows:

"ARTICLE 23b. The Federal Congress shall have power to regulate the exploitation of water powers and the transmission and delivery of the energy developed therefrom.

"But the several Cantons, or those duly authorized by them, shall be entitled to the taxes and fees paid for the use of water power.

"From the date of the adoption of this article all new concessions of water rights shall be subject to future Federal legislation, and the delivery of energy developed from water power to foreign countries shall be subject to the approval of the Executive Council."

According to the usual procedure, this petition was referred by Congress to the Executive Council for report.

On March 30, 1907, the Executive Council made its report to Congress. This report reviewed the earlier petitions and resolutions dealing with the Federal regulation of water power, and concluded that the amendment proposed in the petition was open to improvement. The Council was of the opinion that the Constitution should be so amended as to provide for legislation upon the four following points:

1. The systematic utilization of inter-cantonal and boundary streams.
2. The supplementing of deficient cantonal laws.
3. The rights of the Union as proprietor of the Federal railroads.
4. Measures in the interest of the general welfare.

In order to frame an amendment which would give the Union the necessary powers without infringing upon the rights of the Cantons, the Department of the Interior called together a commission of jurists and experts. This commission met in Bern on January 9, 10, and 11, 1907, and adopted a new draft of an amendment as follows:

"ARTICLE 24b. The development of water power is under the supervision of the Union.

"The Federal Congress shall regulate the disposal and terms of water-rights concessions, as well as the transmission and delivery of electrical energy, so far as the protection of public interests and the proper development of these resources require such regulation.

"Wherever the Federal law does not regulate the terms of water-right concessions, the disposal of such concessions, as well as the determination and collection of the taxes and fees for their use, is under the jurisdiction of the Cantons. But this regulation by the Cantons shall not be so onerous as to discourage the development of water powers.

"When the streams from which the power is developed lie in several Cantons, or along the national boundary, the disposal of the concessions and the determination of the taxes and fees shall rest with the Union, after hearings have been given to the interested Cantons.

"From the date of the adoption of this article all new concessions of water rights shall be subject to future Federal legislation, and the delivery of energy developed from water powers to foreign countries shall be subject to the approval of the Executive Council."

The Executive Council, in its report, then carefully compared the commission's amendment with the amendment proposed in the initiative petition. It pointed out that the initiative petition deprived the Cantons of all jurisdiction over water powers and left to them only the right to collect the charges made for the use of the water powers. This it criticised adversely, as tending toward Federal ownership or monopoly of water powers. It approved the change made in this respect by the expert commission, which proposed that in the jurisdiction over water powers there should be the same division of authority between the Union and the Cantons as already existed in the case of hydraulic works, forests, and game protection. It held, with the expert commission, that when water powers lay wholly within a single Canton it would be sufficient to give the Union supervisory powers which would enable it to protect the public interest and guarantee the proper development of water power resources, but that in the case of inter-cantonal and boundary streams the Union should be empowered to dispose and fix the terms of water right concessions, after hearings given to the interested Cantons. In the absence of Federal legislation, it held, also in concurrence with the commission, that the Cantons should retain jurisdiction, since the right of supervision would enable the Federal authorities to intervene when necessary, either on their own initiative or at the request of some interested party.

The Council further criticised the initiative petition for its

failure to provide a basis for future legislation. It pointed out, also, the need of a verbal change in section 4 of the commission's amendment, so as to enlarge its provisions to cover streams or water courses which flow between Cantons as well as those which are strictly inter-cantonal. Finally, it suggested the change in the last section which provides that future Federal legislation shall apply to existing water right concessions unless exception is expressly made.

The Council closed its report by recommending a substitute amendment based upon both of the proposed amendments before it, and embodying the fruits of the above criticism. The petitioners had authorized the withdrawal of their amendment in favor of such a substitute, and in due course the amendment recommended by the Council was put to vote, with the result already given.

According to the practice, the amendment was published and commented on by the Swiss press. The following clipping from one of the local papers is of interest as showing how great was the importance attached to the amendment by the Liberal Democratic Party:

"THE WATER RIGHTS ARTICLE.

"The central committee of the Liberal Democratic party of the Canton of Bern issues the following appeal:

"Fellow-citizens! On the national election day you are to vote upon an amendment to the Federal Constitution, which would grant to the Union the right to control by legislation the use of water power and the transmission of the energy developed therefrom. In order that our valuable water powers may be developed systematically for the benefit of the country, uniform principles of proper use are to be laid down. The Cantons will retain the rights which they can properly claim and which they have effectively exercised hitherto. To the Union will be given the duties which the Cantons cannot discharge, but which need to be regulated by the Union if development is not to be permanently crippled. Thus far only a small part of our water power has been utilized; we have been paying every year a tribute amounting to millions of Marks in the purchase of coal, etc., abroad, though a great part of this sum could be kept at home if our water powers were better utilized. Yet petty considerations and unworthy special interests are preparing in different places to defeat this measure. For this reason those who truly appreciate its great importance must take their stand with determination and work hard for its adoption. The issue is the protection of great national resources, the advancement of the economic interests of all Switzerland, and therefore of the general welfare of the fatherland."

PART THREE

***Conservation and Use of Land
Resources***

CLASSIFICATION OF THE PUBLIC LANDS

BY GEORGE W. WOODRUFF,

ASSISTANT ATTORNEY-GENERAL FOR THE DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C.

SUMMARY OF OUR MOST IMPORTANT LAND LAWS

BY HON. KNUTE NELSON,

UNITED STATES SENATOR FROM MINNESOTA; CHAIRMAN OF THE SENATE COMMITTEE ON PUBLIC LANDS, AND CHAIRMAN OF THE COMMITTEE ON LANDS, NATIONAL CONSERVATION COMMISSION.

**INDIAN LANDS: THEIR ADMINISTRATION WITH REFERENCE
TO PRESENT AND FUTURE USE**

BY HON. FRANCIS E. LEUPP,

COMMISSIONER OF INDIAN AFFAIRS, WASHINGTON, D. C.

THE CONSERVATION AND PRESERVATION OF SOIL FERTILITY

BY CYRIL G. HOPKINS,

CHIEF IN AGRONOMY AND CHEMISTRY, UNIVERSITY OF ILLINOIS AGRICULTURAL EXPERIMENT STATION, URBANA, ILL.

FARM TENURE IN THE UNITED STATES

BY HENRY GANNETT,

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WHAT MAY BE ACCOMPLISHED BY RECLAMATION

BY HON. FREDERICK H. NEWELL,

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**THE LEGAL PROBLEMS OF RECLAMATION OF LANDS BY
MEANS OF IRRIGATION**

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CLASSIFICATION OF THE PUBLIC LANDS

By GEORGE W. WOODRUFF,

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Each citizen of the United States owns an equal undivided share in the public domain. This has included all the land in the Continental United States and Alaska except the original thirteen colonies and the present states of Texas, Kentucky and Tennessee. The original public domain of the United States proper was 1,441,436,160 acres, of Alaska 368,103,680, and thus would have totaled 1,809,539,840 acres if none of the land had been disposed of. Under the constitutional provision that "Congress shall have power to dispose of and make all needful regulations respecting the territory or other property belonging to the United States," Congress has from time to time enacted, modified and repealed laws for the disposal of the public land, and the total area, exclusive of Alaska, has been reduced to approximately 380,000,000 acres.

The large membership of Congress, the conflicting desires of various portions of the country and of great private interests, and the fact that a minority can prevent the passage of laws desired by the majority, have caused mismanagement of the public domain. In the early days, the pressure of what then seemed a great national debt led to the disposal of the land for revenue. This continued until the homestead law was enacted as a recognition that the establishment of homes and home improvements is a greater return to the Nation than a few dollars per acre. Since that time all the non-mineral public lands have been open to settlement by citizens of the United States who are willing to make farm homes. The immense area of the public land, however, made it practically impossible to determine whether any particular tract was or was not mineral.

Congress provided for the sale of our splendid timber land at a uniform price of \$2.50 per acre, evidently on the theory that it was necessary to place a bonus upon the institution of lumber operations. This forest land is now worth from ten to one hundred times the purchase price of \$2.50 per acre. Some of it has been

saved to the people by the law providing for national forests; but before the possibilities and wisdom of their rapid creation was understood by the executive branch of the Government the bulk of the best timber land had passed into private holding. In this great estate of the people there were about 150,000,000 acres of land underlaid with valuable coal, and not legally open to homesteaders, but the Land Department, because of lack of funds, was unable to save fully 100,000,000 acres of the best of this coal.

From the above it is evident that the one great business need of the Government as steward of the peoples' landed estate, was such a classification of the land and resources as would have made it possible to devote the various areas to their best uses. The location and quality of at least the coal and other minerals which occur in great beds, could have been readily determined. The areas more valuable for permanent reservation for the use of all the people as national forests and national parks could have been found before the best part of them were gone. Invaluable reservoir and water-power sites could have been determined and held for use under proper regulation. The remaining area would have been left for the homemaker. Such a classification would have brought to the attention of Congress in an irresistible way, and before selfish prejudices against the proper disposal of the land had become acute, the propriety of dividing land not only by vertical planes as is now the custom, but by horizontal planes in cases where fine agricultural surface is underlaid with valuable mineral.

In 1796 Congress, in providing for the survey of the public lands, required (1 Stat. 466) the surveyors to note in their returns "the true situation of all mines, salt licks, salt springs and mill sites coming to their knowledge, and water courses over which lines of survey should pass," and also the quality of the lands. The same law required that these returns should be submitted to the surveyor-general, who was required to "cause a description of the whole lands surveyed to be made out and transmitted to the officers who may superintend the sales." This provision is carried into section 2395 of the Revised Statutes and has been in force for more than a century. It is a sad fact, however, that the returns of surveyors are for the most part worse than none at all, since they are woefully inaccurate and misleading.

The surveyors-general's offices throughout the public land states

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naturally came to be a source of political patronage, and the surveyors-general and their deputies were not appointed for reasons of efficiency. For that reason Congress was seriously considering in 1876 the abolition of these offices, and Professor F. V. Hayden, in a hearing before the House Committee on Public Lands, stated :

"If the deputy surveyors could be required to bring in on their plats the information that is demanded, there would be no necessity at present for a bureau for information as regards the classification and irrigation of lands." (Forty-fifth Congress, second session, House Mis. Doc. 55, p. 19.)

The need for classification so worked upon the minds of Congress that in the Sundry Civil Bill of June 20, 1878, a clause was inserted that :

"The National Academy of Sciences . . . at their next meeting take into consideration the methods and expenses of conducting all surveys of a scientific character under the War and Interior Departments and the surveys of the land office, and report to Congress as soon thereafter as may be practicable a plan for surveying and mapping the territories of the United States on such general system as will, in their judgment, secure the best results at the least possible cost."

In the proceedings of the committee appointed by the Academy, Major J. W. Powell said :

"In the administration of the laws relating to these (public) lands those belonging to each specific class must be determined; *but no adequate provision is made for securing an accurate classification, and to a large extent the laws are inoperative, or practically void*; for example, coal lands should be sold at ten or twenty dollars per acre, but the Department having no means of determining what lands belong to this class, titles to coal lands are usually obtained under the provision of statutes that relate to lands of other classes; that is, by purchasing at \$1.25 per acre, or by homestead or pre-emption entry. An examination of the laws will exhibit this fact, that for the classification contemplated therein a thorough survey is necessary, embracing the geological and physical characteristics of the entire public domain. The only provision under the general land office for such a survey is contained in the 'instructions to the surveyor-general.' (*Vide*, p. 18, and paragraphs under the head of 'Summary of objects and data to be noted.') In the performance of those duties the deputy surveyors, who do the work under contract, fail entirely to provide the facts necessary to the proper administration of the laws, and, in practice, the facts upon which transactions in the department are based are obtained not from experts employed as government officers and competent

to perform the task, but on affidavit made by the parties interested, or by persons selected by them, and the history of the land office abundantly exhibits the fact that states and individuals have to a large extent obtained titles to lands from the government under fraudulent representations.

"From the above statement it will be apparent that a thorough survey of the geology and physical classification of the entire domain is *necessary to the administration of the laws relating thereto.*" (Forty-fifth Congress, third session, H. Mis. Doc. No. 5, pp. 19, 20, 21.)

The National Academy Committee after recommending that surveys should be made by the Coast Survey, which was well fitted to make and complete them, went on to say:

"The best interests of the public domain require, for the purposes of intelligent administration, a thorough knowledge of its geological structure, natural resources and products. The domain embraces a vast mineral wealth in its soils, metals, salines, stones, clays, etc. *To meet the requirements of existing laws in the disposition of the agricultural, mineral, pastoral, timber, desert and swamp lands, a thorough investigation and classification of the acreage of the public domain is imperatively demanded.* The committee, therefore, recommend that Congress establish, under the Department of the Interior, an independent organization, to be known as the United States Geological Survey, to be charged with the study of the geological structure and economical resources of the public domain, such survey to be placed under a director, who shall be appointed by the President, and who shall report directly to the Secretary of the Interior."

The House passed a bill February 25, 1879, in which all the recommendations of the Academy were accepted, but the Senate committee reported the bill on February 28th, with all these provisions stricken out. Evidently foreseeing the defeat of these unusually wise measures Mr. Atkins, Chairman of the House Committee on Appropriations, inserted in the Sundry Civil Bill an item of \$100,000 "for the expenses of the geological survey and *the classification of the public lands, etc.*"

Thus, at a time when classification would have been of untold value, we see an awakened consciousness in Congress that their trusteeship of the public domain demanded an investigation and classification of its nature. Unfortunately the wise impulse led to practically nothing. The provision that the Geological Survey should classify has been almost nullified by lack of necessary appropriations. Besides this lack of means to classify there followed a period of quiescence both in Congress and in the executive branch of the

Government concerning the need for properly administering the public land. During that period, which extended to President Roosevelt's first term, seventy-five per cent. of the valuable part of our land passed into private possession either in accordance with the law or, not infrequently, contrary to the law.

The last administration sought vigorously to do all that could be done with the insufficient and inefficient laws at its disposal. During Mr. Roosevelt's presidency the area of the national forests was trebled, thus classifying the public land valuable for timber and watershed protection purposes. President Roosevelt withdrew about 68,000,000 acres of the coal land to hold it from disposal until it might be classified. The bulk of this land has been classified and the classification of the rest will be practically complete at the end of the coming field season. The Reclamation Service has withdrawn large areas for its projects under the Reclamation Act thus classifying the bulk of the irrigable land remaining. President Roosevelt also withdrew a great area of phosphate and oil lands. One of the last acts of Secretary Garfield, acting for the President, was to withdraw several hundred reservoir and water-power sites from all form of disposition except under the appropriate right of way laws. All these withdrawals, however, are simply acts of the executive to protect temporarily the public property and it is the part of Congress to pass the badly needed laws to devote permanently the public lands and resources to their best use.

The conclusion to be drawn from the conditions set forth above is that either the remaining public land must be disposed of to the disadvantage and irreparable loss of its owners, the people, or Congress must be speedily aroused to the great fundamental principles: That the surface of land more necessary for public use for conserving water run-off, unusual natural scenic beauties or wonders, timber and forage, than for homemaking, should be held by the Government permanently for the use of all the people and maintained effectively in a condition to insure its highest efficiency for all time; that the surface of land chiefly valuable for agriculture should be disposed of only to actual homemakers in areas reasonably capable of supporting families; that the right to exploit the mineral resources belonging to the nation should be reserved and granted only to those who actually intend to exploit them, in such limited areas, for such periods, and under such conditions as will for each class of mineral

bring about its seasonable and economical exploitation, but prevent such monopoly as may injure the interests of the people; that rights of way which depend upon the peculiar formation of any of the public lands should be permitted for definite and limited periods only, varying for each class of right of way, with reasonable conditions to protect the public interest, but with certainty to the permittees against revocation during the permit period for any cause except non-use or misuse; and that, pending disposal or reservation of the public land, it should be administered and protected as far as each class of land is concerned by that governmental agency best fitted in each case to handle it efficiently.

A SUMMARY OF OUR MOST IMPORTANT LAND LAWS

BY HON. KNUTE NELSON,

United States Senator from Minnesota; Chairman of the Senate Committee
on Public Lands; and Chairman of the Committee on Lands,
National Conservation Commission.

Aside from several acts providing for the satisfaction and location of warrants, issued for military service, and a number of acts relating to special and limited grants, the first act of a general character making provision for the survey and disposal of our public lands was the act of May 18, 1796 (1 Stat. 464). The title of this act is as follows: "An act providing for the sale of the lands of the United States in the Territory northwest of the Ohio River and above the mouth of the Kentucky River."

This act outlined and prescribed the system of surveying the public lands, in its essentials since adhered to, and provided for the disposal of the surveyed lands at public sale, partly on credit, to the highest bidder. The amendatory act of May 10, 1800 (2 Stat. 73), while adhering to this system of public sales, provided that lands not disposed of at any such sale might be sold at private sale, but in neither case at less than \$2 an acre. By the act of April 24, 1820, sales on credit were abolished and the minimum price at public and private sale was fixed at \$1.25 per acre, at which rate it has since remained. Lands, thus open to private sale, became known thereafter as offered lands, while surveyed lands that had not been exposed to public sale became known as unoffered lands. This act also gave a pre-emptive right to the extent of a section—640 acres—at \$2 per acre, to any person who had erected or had begun to erect a grist or saw mill on such section of land, subject to public or private sale. From this time on settlers on public lands were tolerated, and as a rule not deemed trespassers; and from time to time various acts were passed giving pre-emptive rights to those who had made settlements prior to the passage of the laws.

The first pre-emption law, however, of a general character, and prospective and continuing in its operation, was the act of September 4, 1841 (5 Stat. 453), authorizing a settlement to be made on

surveyed land, to which the Indian title had been extinguished, and giving a pre-emptive right thereto. This was subsequently amended so as to extend to unsurveyed, as well as surveyed land, to which the Indian title had been extinguished and which was not included in any reservation. The head of a family, a widow, or a single person over twenty-one years of age, who was a citizen or had declared his or her intention to become a citizen of the United States, and who was not the owner of 320 acres of land and who did not quit his own land to reside on the public land, was qualified as a settler and pre-emptor, under these laws. No settler could acquire more than 160 acres. If the settlement was made on offered land the settler must, within thirty days after initiating his settlement, file a notice and statement of his claim at the district land office and must make his final proof and payment for the land within twelve months after initiating settlement. If the settlement was on surveyed and unoffered land, he must file his statement within three months and make final proof and payment within thirty-three months from date of settlement; and if the settlement was made on unsurveyed land he must file his statement within three months after plat of survey was filed in the district land office and make his final proof and payment within thirty-three months thereafter. The minimum price was \$1.25 per acre. The law contemplated that the settler should occupy, improve and cultivate the land from date of first settlement until final proof and payment. The land department permitted final proof and payment to be made at the expiration of six months from date of settlement and much laxity prevailed in the district offices in the matter of proof of settlement and cultivation. Oftentimes claims were allowed to be "proved up" when there had been little or no residence, and the scantiest kind of improvements on the land. Payment could be made in cash, military bounty land warrants, agricultural college scrip, and a few other kinds of scrip. *Bona fide* settlers, as a rule, took the extreme time limit of the law for making final proof and payment and where they were unable to pay, they converted their claims into homestead entries, under the homestead law of the United States, as they had the right to do. Much of the land was "taken up" under the law by mere speculators who would "prove up" as soon as they could and then sell their claims for what they could get and leave the country.

In March, 1889, the law, allowing land to be secured at private sale, or by "private entry," was repealed, and thereafter the pre-emption law was utilized on behalf of those who desired to secure valuable timber lands and other lands in large quantities by hiring young men and women to "take up" pre-emption claims, and taking a transfer from them on "proving up," and paying them for "their time and trouble." The pre-emption law was finally repealed in March, 1891, as well as the law permitting public sales. The homestead law furnished ample facilities for the honest settler to acquire a home, while the pre-emption law had become, by this time, to a large extent, a mere instrument for acquiring land for speculative purposes, hence its repeal. It ought to have been repealed when the homestead law was enacted.

The most important, in many respects, of all our land laws, the law under which so many poor people have been enabled to secure for themselves happy homes, and under which our country has been so rapidly developed and settled, is the homestead act of 1862, a veritable home-builders' law. Under this law, as now amended, every person who is the head of a family, or who has arrived at the age of twenty-one years, and who is a citizen, or has declared his intention to become a citizen of the United States, and who is not the owner of 160 acres of land, may enter one quarter section or less of the "unappropriated public lands," at the district land office. After making such entry he must establish his residence on the land within six months thereafter and must continue from thenceforth to reside upon, cultivate and improve the land for the period of five years, at the end of which time, or within two years thereafter, on furnishing the required proof of compliance with the law, as to residence, improvement and cultivation, he is permitted to make final entry of the land, without paying anything therefor, except the land office fees, and thereupon patent will issue to him in due course. A person who has only declared his intention to become a citizen when making his first entry must be fully naturalized before he can make the final entry. Under the original law the homesteader acquired no right to the land before he made his first entry at the land office; but under an amendment to the law a homesteader may settle on unsurveyed land, and if he then makes entry of the land within three months after the plats of survey have been filed in the district land office his right to the land will date

from the time he initiated his settlement. In case the homesteader is unwilling to reside upon the land for the five years and is willing to pay for the land, he can "commute" his entry as under the pre-emption law. Originally he could "commute" after six months' residence, as under the pre-emption law, but under the law of 1891 this period was extended to fourteen months. "Commuting" consists in furnishing proof of residence and cultivation for the period of fourteen months and paying the minimum price, \$1.25 per acre, for the land. The land department originally construed the act of 1891 by counting the period of fourteen months from the date of the entry and inasmuch as the entryman had six months in which to establish his residence upon the land, it led to a residence and cultivation requirement of only eight months. This rule has now for some time been abandoned and fourteen months of actual and continued residence and cultivation is now required before an entry can be "commuted." The homestead law has proved a great blessing to the poor and needy settler in enabling him to pay for his farm by merely residing upon, improving and cultivating the same for the period of five years. Starting without any capital, except a zealous spirit and strong arms, he finds himself at the end of five industrious years the possessor of a good home, worth from three to six thousand dollars, and meanwhile he has been paying his taxes, furnishing trade and traffic for the merchant and the railroad, and living immune from the controversies recurring between capital and labor, because, in his case, capital and labor have been concentrated in one head. The one defect of the homestead law that has, to some extent, marred its greatest usefulness, has been the permission to "commute" and make final entry before the end of the five-year period. This was especially glaring and pronounced while "commutation" could be made in six months, and it is still very bad under the fourteen-months' limitation. The evil lies in the fact that so many "take claims" because of the commutation privilege, not for the purpose of a permanent home, but merely for the purpose of securing the land to hold for speculative purposes, as middle-men, to sell out at a profit to some actual and permanent settler. The real settler is in no hurry to make proof and final entry. He oftentimes avails himself of the seven-year period. It is, as a rule, the speculator—the man who does not care to live on the land—who is in a hurry to "prove up," and "commute," as it enables him, sooner or later,

to levy tribute on the actual and real settler. The speculative homestead commuter is not a home-builder, and does not deserve our help or sympathy. The area of public lands, suitable for farms, is rapidly diminishing, while our population is even more rapidly increasing. In times of great industrial stagnation, our public lands have proven a great safety valve—have proved themselves the haven where poor and industrious laboring men, forced out of employment and without work, could go to work in creating happy homes for themselves and their children, immune from the industrial stress prevailing in our large cities and manufacturing centers. This safety valve, this haven, should be preserved as long as possible, and the repeal of the "commutation" provision of the homestead law is one of the important means of such preservation. None but the real home-builders should have the benefit of that law.

Another important land law remains to be noticed. I refer to the timber and stone act of June 3, 1878, originally limited to the states of California, Oregon, Nevada and Washington, but subsequently, by the act of August 4, 1892, extended to all the public land states. Under this law any person who is a citizen, or has declared his intention to become a citizen of the United States, may purchase and acquire title to 160 acres of unappropriated, uninhabited and unreserved non-mineral public land of the United States, unfit for cultivation, and valuable chiefly for timber or stone, at the minimum price of \$2.50 per acre. Only one tract of 160 acres can be purchased by any person and before he can purchase the same, he must present to the register of the district land office his sworn statement, specifying, among other things, that he does not apply to purchase the same on speculation, but in good faith to appropriate it to his own exclusive use and benefit, and that he has not, directly or indirectly, made any agreement, or contract, in any way or manner, with any person by which the title he may acquire shall inure to the benefit of any person but himself. False swearing renders the purchaser guilty of the crime of perjury and involves a forfeiture of the land and the money paid therefor. On its face this law, at first blush, seems harmless, and as though it was merely intended to give a settler an opportunity to secure some stone or timber for his own use and as an appurtenance to his farm holding, but no land law has proven more baneful in its operation to the welfare of the country than this. It has been made the vehicle through which a

few of the big lumbermen of the country have secured and monopolized thousands of acres of our most valuable timber lands, and this has been carried on to such an extent that but a limited supply would still remain were it not for the fact that we have, in recent years, put much of our timber lands in forest reservations.

The mode in which these lumbermen have carried on their operations has been, in the main, and in outline, this: They have, in person or through agents and employees, secured, by divers means, a large number of men and women, in various parts of the country—people who knew nothing about such lands, and who had no thought of acquiring the same—to apply to purchase and enter such lands, supplying them with money to travel from remote, interior towns to examine and select the land and make the necessary application to purchase at the district land office, and supplying them with money to pay for the land, and then after the purchase and entry were completed procure a conveyance of the land to themselves for a moderate bonus. These dummy purchasers—for they were in fact in most cases nothing else—would be approached in the first instance like this: "I know where you can make some money by taking a timber and stone claim. It will cost you only \$2.50 per acre and you can easily sell it as soon as you get title for an advance of \$200 or \$300, or perhaps more." "But I have no money with which to go and examine and purchase the land." "That does not matter; I know a friend who will advance you the money and will take the land off your hands at a good profit as soon as you get title, but you must keep this matter to yourself." The temptation to make money in this easy way is so alluring that many act on the suggestion and thus become the instrumentality of the big lumberman. I remember how, a few years ago, a large number of lady school teachers in a western city—the headquarters of some big lumbermen—were induced to "take up" timber and stone claims in Oregon, Washington and California, more than 1500 miles from where the teachers lived. Most of these lands afterwards passed into the hands of these lumbermen.

A large portion of our timber lands in the western states, outside of the government forest reservations, has, in recent years, largely under operations such as I have mentioned, passed into the hands of large lumber syndicates, who have well-nigh secured a monopoly of our timber supply. There are still in various localities in the

western states bodies of timber land that ought to be preserved and conserved for the present and future welfare of the people of the United States. These lands ought not to be sold, but should be retained by the Government and the timber on them should be conserved, and only the old and mature timber should, from time to time, be sold under suitable rules and regulations, to the end that our people may not become entirely helpless under the timber monopolies now hovering like a dark cloud over our country.

Holding these views, to me it seems clear that the timber and stone law should at once be repealed. Nearly five years ago the Senate passed a bill repealing the law, but the bill met with defeat in the House. While much has been lost since then, there is still something to save, and speedy action should be taken.

It remains to notice another important land law, now obsolete, which, while passed for a good purpose, proved, to a large extent, abortive and a source of speculation. I refer to the timber culture act of March 13, 1874, entitled "An act to encourage the growth of timber on the western prairies," largely amended and modified by the act of June 14, 1878. As thus amended and modified, the law authorized the entry of a quarter section, or less, of treeless land, by any person who was the head of a family, or who had arrived at the age of twenty-one years, and who was a citizen, or had declared his intention to become a citizen of the United States, for the purpose of timber culture. The conditions for acquiring a complete title were, in brief, that the entryman should plant, protect, and keep in a healthy, growing condition for eight years ten acres of timber on a quarter section, five acres on an eighty, or two and one-half acres on a forty-acre tract. On furnishing proof of compliance with these conditions final entry would be allowed and patent would issue. No residence on the land was required. In its practical operation it took ten years to acquire full title under this law. The first year was devoted to breaking the land, the second year to planting the trees, and the remaining eight years to the care, growth and propagation of the trees. The purpose to promote the growth of timber on the western prairies was most laudable, but to a large extent, partly through climatic conditions, but largely through neglect and want of care on the part of the entryman, comparatively few claims became forested or timbered. The entryman was usually one who held a homestead or pre-emption

claim, and he took advantage of this law to get another 160 acres of land. He would break and plant, but *not* otherwise give much attention to the trees. He would do just enough to keep the land in chancery for ten years, in the meantime keeping others from getting it, then "prove up" his homestead, or pre-emption claim, and then relinquish his tree claim and enter the land either under the homestead or pre-emption law, whichever of the two rights he had not used and exhausted. Then, too, many tree claims were "proved up" on, to say the least, very questionable, if not perjured, testimony. Another favorite way was for the timber entryman, after holding his claim for two or three years, to relinquish his claim for a good consideration in favor of some settler who was anxious to secure the land as a homestead. There was quite a speculation for a time in timber claim relinquishments. In short, the law, in its practical operation, proved, on the whole, a rather scant timber producer, and the source of some fraud and much speculation. By the act of March 3, 1891, the law was finally repealed with some saving provisions for existing claims.

There are some other important land laws, such as the desert land law, the reclamation land law, and the so-called Carey law, all relating to the reclamation and settlement of arid lands, which are local in their scope and which I can not well describe in detail without unduly enlarging this paper. Various kinds of land scrip, or quasi-scrip, available for the location and entry of public lands, have, from time to time, been issued, such as military bounty land warrants, agricultural college scrip, Sioux half-breed scrip, Chippewa half-breed scrip, soldiers additional, Valentine scrip, Porterfield scrip, Supreme Court scrip, surveyor general scrip and forest reserve scrip. Most of this scrip has now been exhausted and but little of it remains to be located.

It must further be noted that large quantities of public lands have been, at various times, directly or indirectly, granted to railroad companies to promote the construction of railroads. Years ago there were limited grants made for the construction of canals and other waterway improvements, and for wagon roads; and the states, too, have received large and liberal grants for educational purposes, for reclaiming wet and overflowed lands, and for other purposes of internal and municipal improvements.

From this brief review of our public land system—if indeed

such a varied and heterogeneous course of procedure can be called a system—it appears that the Government started out with the idea that it was desirable to dispose of the land as soon as possible at the highest obtainable price. The land was regarded simply as an asset to be converted into cash as soon as possible, hence the plan of public sale supplemented private sales. Many of the pioneers and frontiersmen, however, who pressed into the wilderness to make homes, were too poor to pay for the land immediately. So, in the first instance, they became mere squatters, but as they, and not the speculators who bought at public sale, were the real settlers who occupied, subdued and improved the public domain and became the nucleus and founders of municipal government, the Government began to see the necessity of giving them a helping hand. While still adhering to the purchasing idea, it gave them a first chance to buy, with a brief breathing spell in which to raise the necessary funds. Hence came the many special, and ultimately the general pre-emption, laws. The settler must still buy at the same price as the speculator, but he was given a chance to make a short start on his claim before paying the price. By and by, after much controversy, Congress finally came to the conclusion that it was more important to have the public domain “settled up,” as rapidly as possible by real home-builders, even without compensation, than to get money and turn the land over to a lot of middlemen for exploitation and profit. Hence came our homestead law, the wisest and best of all our varied land laws. While most of the lands, taken under our other land laws, have passed into the hands of real settlers and home-builders, yet these have had to render a large tribute to the speculators and middlemen who first purchased from the Government. The tribute these men received has been greater than the tribute they rendered the Government in the first instance.

My conclusion, from this brief survey of our land system is, that in view of the rapid increase of our population and in view of the rapidly diminishing area of our public domain, no agricultural land should be disposed of except under the homestead law without the “commutation” privilege; that none of our remaining forest lands should be disposed of, but only the large and mature timber; and that our arid lands should be disposed of for agricultural purposes to actual settlers under the reclamation law.

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INDIAN LANDS: THEIR ADMINISTRATION WITH REFERENCE TO PRESENT AND FUTURE USE

BY HON. FRANCIS E. LEUPP,
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From the genesis of the freehold the relation between land and the degree of civilization of the people living thereon has been very close. Economists have recognized this fact, and it has formed one of the premises of political economy from the founding of that science. That the welfare of a people has its tap-root literally in the soil has come to be regarded as axiomatic; hence it is that the administration of Indian lands constitutes a very large part of what is known as the "Indian Problem"—the effort of the United States, as guardian or trustee, to civilize the Indian race and make it self-sustaining.

It may be said in passing, and enlarged upon later, that the present administration of Indian affairs takes cognizance not only of the interests of the Indians, but also of those of the whites, and gives proper weight to the justifiable selfishness which insists upon such method of administering the lands of the Indian wards as will have due regard for the rights of their trustees.

It is impossible adequately and intelligently to discuss the present administration of Indian lands without a retrospective glance at the steps by which the policy now followed has been reached. At the time of the discovery and settlement of America the many Indian tribes inhabiting that part now embraced within the limits of the United States were recognized by the various governments under whose authority settlements by whites were made as separate and independent communities. As the country gradually filled up, and as the demands of increasing population required, the United States, which had succeeded in turn to the rights of Great Britain, Spain, France and Mexico, under the pressing necessity of obtaining complete possession of the territory east of the Mississippi, adopted the policy of extinguishing, by treaties, the title of the various tribes to the land they had occupied, assigning to each a district or reservation of land of smaller area, yet com-

mensurate with the Indian modes of life and subsistence, within whose limits it was protected in the enjoyment of a modified or local sovereignty.

This was the beginning of the "Reservation System," a system whose evils it requires the larger part of the energy of recent Indian administration to remedy; and it is to be noted that in laying the foundation for this anomalous maintenance of nations within a nation, the Indians were not yet recognized as wards of the Government, but were treated with as distinct though dependent nations, and their right to the lands occupied by them was recognized in formal treaties. Most of the reservations, each a princely domain, were west of the Mississippi and on land for which it was then thought the white settler would have no need for centuries if at all; and the right of perpetual possession was guaranteed the Indians.

Then came the railroad and telegraph, and, almost overnight, wrought the changes of centuries under the old régime. When time and space had been annihilated, land which had been waste and useless suddenly became not only desirable but necessary for the extended development of the national interests.

As the whites increased in number and power and in time surrounded the reservations with farms and towns, they were prevented from entering and taking possession of the lands of the Indians only by an enforcement of treaty obligations. It was not long before the situation thus created was recognized as impossible, and under one and another pretext large areas of reservation land were thrown open to general settlement. With this change came also, partly under the guise of compensation for the lands thus taken, and partly as the simplest way of keeping alive a people whose means of subsistence, the hunt, had been destroyed, the abominable ration system, with its resultant pauperization of the Indian race. It will be seen before I close this discussion that much of the present method of administering Indian land matters is aimed at, or modified by, the necessity of combating the results of this deadly blow at the real welfare of the Indian.

Three epochal departures mark the transition from the method of treating the Indians and their lands which I have just outlined, to the present system. They are the Act of March 3, 1871 (16 Stat. L., 566), the Act of February 8, 1887 (24 Stat. L., 388), and the

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decision of the United States Supreme Court in the case of *Lone Wolf* against *Hitchcock* rendered on January 5, 1903.

The first of these, which declared that thereafter no Indian nation or tribe within the territory of the United States should be recognized as an independent nation or tribe with whom the United States might contract by treaty, was the initial step in the recognition of the ultimate use of Indian lands. By depriving the Indian tribes of the treaty-making status, Congress gave itself the power the more closely to scrutinize proposed contracts or agreements with them and to alter such agreements for the public good without the consent of the Indians.

The next step logically, though not chronologically, was the decision of the Supreme Court referred to, which held in effect that the United States was not bound to regard the terms of its treaties with Indians made prior to the Act of March 3, 1871, when the public welfare, or the real interest of the Indians, was no longer subserved by their observance. By this act and this decision the Government of the United States, largely represented in its relations with these people by the Office of Indian Affairs, was given the power, with the concomitant responsibility, of working out with a free hand the salvation of the Indians and the administration of their lands to the best interest of all concerned.

Midway in point of time between the act and the decision referred to came the Act of February 8, 1887, variously known as the "Dawes Bill," from its author, the late Senator Henry L. Dawes of Massachusetts, the "Severalty Law," and the "General Allotment Act," which provides that the President may, in his discretion, allot the Indians their lands in severalty in specified quantities, and that the surplus lands may then be disposed of in manner agreed upon, the proceeds going to the Indians.

Rightly understood, this act was the "Magna Charta" of the Indian, though the emancipation it brought was forced upon him reluctant and protesting, instead of being demanded by him. At the same time it provides automatically for opening to white settlement the thousands of acres of Indian land not actually needed by the Indians.

The Severalty Act was designed to change the wandering, improvident and semi-civilized hunter to a domestic, industrious and enlightened citizen. As the first step to this end the law contem-

plated giving to each Indian a home, and that the home in the first instance should be agricultural. The first industries were to be the primal ones of farming and grazing. In this new mode of life the guardianship which theretofore had been exercised over the tribes was transferred to a guardianship over the individual allottees. The separate manhood of each Indian was recognized, but for a time he was to be subject to the care and supervision of the Government as trustee. Recognizing that the Indian could not be made overnight into a business man qualified to care for his own interests, the law was so conditioned that during a period of wardship and tutelage of at least twenty-five years the allottee should not be subject to entering into unequal competition with whites in the field of traffic and general business outside of agriculture and grazing. At the end of the twenty-five-year trust period, the Indian would be presumed to have advanced so far in civilization as to be competent to manage his own affairs, whereupon a fee patent would issue to him, and the leading-strings between himself and a paternal government would be severed finally.

The reservation system had the effect of stunting endeavor to the extent of suppressing the chief motive of human effort—self-preservation. Moreover, bitter experience had led the Indian to conceive a racial dislike to the white man, whose good faith he suspected. By nature he is averse to common hard labor, has no idea of saving for to-morrow, and abhors restraint and discipline.

It is not to be wondered, therefore, that when the Allotment Act was passed, the red men evinced a sharp repugnance to the whole program contemplated. They objected to the disruption of the old tribal ties, to the distribution of their lands, and to the demand that they should farm. In many cases the greatest difficulty was experienced in inducing members of bands to take up their allotments. Even where reservations were broken up and the allotted land accepted, often no disposition was displayed by the allottees to compass the essential object of supporting themselves. They simply sat down and let things drift or indulged in their old time diversions of dancing and gambling, and in most cases the Government thought it expedient to continue the accustomed distribution of rations for a greater or less period.

For twenty-two years the Office of Indian Affairs has been engaged in the execution of the General Allotment Act, and various

special acts having in view the same purpose but adapted to the varying conditions of different tribes. The general law, for example, provides for the allotment of eighty acres to each member of the tribe where the land is recognized as agricultural, and 160 acres where it is fit only for grazing; but in a large part of the frontier West it has proved difficult to classify the lands satisfactorily.

Even where classification is simple the general law sometimes proves defective on other points. Most of the reservations yet to be allotted contain little or no agricultural land that can be cultivated without irrigation. Eighty acres of irrigable land is vastly more than an Indian can utilize, and, owing to lack of funds, the cost of irrigating so great an area is almost prohibitive. All who know Indians are aware that no people are so easily discouraged by being given a task which seems to them beyond their powers. Hence, in allotting to an Indian a tract of land larger than he can hope to till—especially when his tenure of the water necessary to make it productive depends upon his beneficial and continued use thereof—would be to place upon him not only a physical but a moral handicap.

On the other hand, 160 acres of grazing land is entirely inadequate in those regions where the main industry is raising cattle. Where it requires forty acres to a head of cattle, and 100 head of cattle to furnish means of support for a family, an allotment of 320 acres of grazing land will not solve that family's economic problem.

Not infrequently where reservations are opened by special acts of Congress, the primary object appears to be to hasten the date when the surplus unallotted lands can be taken by the home-seeker, and not enough thought is given to the condition of the Indians to be allotted, or to the ultimate welfare of those whites who will acquire homes on the coveted lands or will eventually succeed, through purchase, to a large share of the allotments.

I think the remedy lies in vesting greater authority in the Department, by passing a general law allowing not less than five or more than forty acres of irrigable land, or more than 640 acres of grazing land, to each Indian, in the discretion of the Secretary of the Interior. This not only would enable the Department to care properly for the interests of the Indians, but would result also in the more rapid opening of reservations and the consequent dissolu-

tion of the generally condemned reservation system. The development of the frontier West would thus proceed to the ultimate advantage of both Indian and white citizens, and automatically.

Like their white neighbors, Indians are of more than one sort, ranging from good degrees of intelligence, industry and thrift to the depths of helplessness, ignorance and vice. Experience has proved that Indians of the former class do better when allowed to run their own business than when the Government tries to run it for them; but that citizenship and jurisdiction of the local courts are of no advantage to Indians of the latter class because the community as a rule does not interest itself to compel the proper exercise of police and judicial powers in behalf of any group of people who constitute a mere waste element and bear no share of the tax burden.

Such conditions made plain the need of some law which would enable the Indian Office to manage the affairs of the helpless class with undisputed authority, but, on the other hand, to remove from the roll of dependents the ever-increasing number of Indians who no longer need Government supervision, yet who could be emancipated only by a special act in each case. To this need came a response from Representative Charles H. Burke of South Dakota, who procured the passage of an act modifying the Dawes law by postponing the citizenship of all Indians allotted after May 8, 1906, till the termination of the trust period, but giving authority to the Secretary of the Interior to terminate the trust period by issuing a patent in fee whenever he is satisfied of the competency of any individual allottee to manage his own affairs. It also provides that on the death of an Indian allottee his allotment may be canceled and patent in fee issued for the canceled allotment to the heirs of the deceased allottee; or the Secretary of the Interior may cause the land to be sold as provided by law and issue a patent therefor to the purchaser, paying the net proceeds to the heirs or their legal representatives.

The legislation of recent years shows conclusively that the country is demanding an end of the Indian question, and this is right. The Burke law is accomplishing more in this direction than any other single factor developed within a generation. Competent Indians, owning their land in fee and receiving their portions of the tribal property without restrictions, cannot by any course of action maintain a claim for further consideration. Through such

measures and their application, the grand total of the nation's wards is diminishing daily and with a growing ratio, more than 3500 applications for fee patents having been approved in the three years the Burke law has been in effect.

From what I have written it will be seen that for twenty-two years the Indian department has been required to administer two classes of Indian lands—the reservations, and the lands held in trust for individual allottees—and it will be engaged in this dual work for a few years to come. After that there will be no reservations; white settlers will have all the surplus lands, their farms will join those of the Indians, and the latter, by the removal of restrictions, will pass rapidly from the trusteeship of the Government into the care of their owners; and thus, in about a generation, "Indian lands" and the "Indian problem" will simultaneously disappear in the vortex of a general American citizenship. Let me trace now, briefly, some of the specific methods employed in administering these two classes of lands.

I have said that the Indian was reluctant to use his land either for farming or for stock-raising. Partly as an example to arouse emulation and partly to prevent needless waste, the policy of leasing tribal lands was inaugurated, and this was the earliest use made of strictly reservation lands. This policy is still in vogue, and hundreds of such leases are made every year.

No authority existed for leasing allotted lands until February 28, 1891, when an amendment to the General Allotment Act provided for leasing allotments on reservations "bought and paid for" by the Indians. Under this act (26 Stat. L., 794), as amended by the Acts of June 7, 1897 (30 Stat. L., 85), and May 31, 1900 (31 Stat. L., 299), the terms for which allotted lands may be leased are limited to three years for grazing and five years for farming purposes, except unimproved allotments on the Yakima Reservation in Washington, which may be leased for agricultural purposes for a period not exceeding ten years, on such terms and conditions as may be prescribed by the Secretary of the Interior. The Act of April 30, 1908 (35 Stat. L., 70), authorizes the leasing of allotted lands susceptible of irrigation in the former Uintah and Umcompahgre Reservations in Utah, with the consent of the allottees, for terms not exceeding ten years; and the same act extends the term for leasing lands susceptible of irrigation on the Shoshone Reservation in Wy-

oming to not exceeding twenty years in the discretion of the Secretary of the Interior. More than 7300 such leases were approved between August 15, 1907, and August 15, 1908. My own modification of this policy, as Commissioner of Indian Affairs, has been to permit progressive allottees to make their own leases and collect their own rentals free from departmental supervision, and in the same period more than 2900 Indians have been accorded this privilege.

Next in order is the use of timber on reservations and allotments, and here enters what is perhaps the most important single policy in my handling of Indian affairs—a policy which has been extended to reclamation work, and which I hope to see made to cover many other phases of administration.

As to timber: The Indians have the right to apply to their own use and benefit the entire products of a reservation, whether the result of their own labor or of natural growth, if they do not commit waste. If the lands in a state of nature are not in a condition for profitable use, they may be made so; if wanted for the purpose of agriculture, they may be cleared of their timber to such an extent as may be reasonable under the circumstances, and the surplus timber thus removed and not required for use may be sold by the Indians.

There is no general law authorizing the sale of growing timber on Indian allotments and reservations. The Act of February 16, 1889 (25 Stat. L., 673), provides that the dead timber, standing or fallen, may be cut and removed with the consent of the President. Under this act sales have been made from time to time.

Article 3 of the Treaty of September 30, 1854 (10 Stat. L., 1109), with the Chippewa Indians of Lake Superior and Mississippi, authorized allotments with only such restrictions as the President might see fit to impose. Under this article the President has approved regulations under which allottees of the Bad River, Lac du Flambeau, Lac Courte Orielles and Red Cliff Indians have been authorized to sell their timber.

The Act of April 21, 1904 (33 Stat. L., 209), gave to the Chippewas of Minnesota the right to sell their timber on the allotted lands with the consent of the Secretary of the Interior, and under this act the Secretary has promulgated regulations for Indians of the Leech Lake, Grand Portage and Fond du Lac Reservations.

Operations are now in progress on the Menominee Reservation in Wisconsin, under the terms of the Act of March 28, 1908 (35 Stat. L., 61), which authorizes the cutting of timber, the preservation of the forest and the manufacture and sale of lumber on that reservation.

The Supreme Court in *United States vs. Paine Lumber Company* (206 U. S., 467), decided that the Stockbridge and Munsee Indians in Wisconsin were authorized to sell the timber on their allotments without governmental supervision. Even with such limited authority millions of feet of timber are logged yearly, and the Department is endeavoring to obtain legislation authorizing the sale of mature timber on all Indian lands, whether allotted or unallotted.

Where the present administration has made its impress upon the forestry and other classes of work under its supervision is in the way of systematic co-operation between various departments and bureaus of the Government, so as to get rid of the "wheels within wheels" which are so grave a source of waste in administration. For example, the Office of Indian Affairs, when I assumed charge of it, not only performed the functions naturally to be expected of a benevolent guardian engaged in raising a race of human beings from barbarism to civilization, but maintained a little forestry branch, a little reclamation service, and several other minor organizations for work along lines commonly cared for, and presumptively better cared for, by special bureaus established by law for the benefit of the American people at large. Recognizing the broad economic principle that no extensive public work can be conducted so successfully on a retail as on a wholesale basis, and as the needless multiplication of machinery for doing the same class of work tends to retard rather than advance the attainment of the ends sought, I opened negotiations for a co-operative arrangement with the Forest Service, and under date of January 22, 1908, the Secretary of the Interior and the Secretary of Agriculture entered into an agreement by the terms of which the Forest Service is making a careful study of the forests on Indian reservations, for the purpose of determining the best permanent use of the lands. When these are found more valuable for forest purposes than any other, it prepares and applies plans for their management; it sells such timber as may be cut without injury to the forests; it supervises the logging under methods which will improve the forest and yield the full market

value of all the timber cut; and it protects all forests on Indian reservations whether or not they are being cut over. While the salaries and expenses of the men employed to carry out this agreement are paid by the Indian Office, all the men employed are responsible only and directly to the Forest Service.

A still larger field for increased co-ordination is found in irrigation work which is going on now all over the West. Within the last ten years this subject has taken such strides in public interest as to astonish even those who are the most enthusiastic advocates of the artificial reclamation of our deserts. Irrigation has come to play so large a part in the agriculture of the West that it is almost impossible to separate the two ideas. Tracts of Indian country which were made into reservations long before there was any general knowledge of irrigation, and which were then supposed to be comparatively valueless except for grazing or mining, are now proving to be well adapted to general agriculture, even including some of its more delicate forms, if water can be put upon the soil.

The problems pertaining to the development and preservation of an adequate water supply for the irrigation of Indian lands are of a nature demanding the most careful study. The Indian Service has its own irrigation corps and system; but here again, as in matters affecting timber lands, the problems to be worked out on Indian reservations are often so closely allied with problems involving large areas of country opened to white settlement as to make the union of the Indian irrigation projects and the white irrigation projects really essential to the success of both.

To that end I have perfected an agreement with the Reclamation Service whereby there are turned over to that service those irrigation projects into which both white and Indian interests enter, reserving for the Indian Office those which are purely Indian propositions; but even in the latter class the irrigationists of the Indian Service have the benefit of the expert advice and assistance of the consulting engineers of the sister service. Such a combination procures for the Indians the best the Government can command in the way of irrigation plans and work, and reduces the chances of serious mistakes to a minimum. Under such conditions large works, involving the expenditure of several million dollars, mostly reimbursable from future sales, are under way or projected on the Gila River Reservation, Arizona, the Flathead, Blackfeet and Fort Peck Reser-

vations in Montana, the Fort Hall Reservation in Idaho, the former Uintah Reservation in Utah, and the Shoshone or Wind River Reservation in Wyoming.

It is apparent that in the rapid opening of reservations, the severing of the tribal relations as far as possible, and the invitation to white occupancy of lands formerly locked within the confines of reservation boundaries, the protecting arm of the Government has been withdrawn in a large degree from the ward who heretofore has been so dependent upon it. Many problems will arise in the future, and it must needs be that some of the weaker of this race go down that their stronger fellows may attain to the full measure of citizenship. It is impossible to foresee all the difficulties which may present themselves, and they will have to be met as they arise in the manner which seems most equitable to all interests concerned.

But it must be apparent that through the present policy of the Government in administering Indian lands due regard is had to the proper interests of the whites. Any other policy would not result in the real betterment of conditions for the Indians, for it would unnecessarily retard the growth of the State or Territory within whose boundaries Indian lands lie, and the individual Indian, like the individual white, rises or falls in prosperity with the prosperity of the community in which he lives and of the country which surrounds him.

THE CONSERVATION AND PRESERVATION OF SOIL FERTILITY

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Within a hundred miles of the spot where the first permanent English settlement was made in our country one can to-day buy hundreds of thousands of acres of arable land for less than \$10 an acre—land that was once valued at \$50 an acre, and would now be worth more than \$100 an acre if its fertility had been maintained. This statement does not include any reference to lands that have seriously suffered from soil erosion, but only to great areas of nearly level or gently undulating farm lands whose productive power has been almost destroyed by a hundred years or more of common cultivation by American farmers.

The two and one-half billion bushel corn crop of the United States is mostly produced on land not subject to injury by surface washing, and in the main this is also true of the half-billion bushels of wheat from the principal wheat-producing states.

The greatest material problem of the United States is not in the development of the waterways, not in the preservation of forests, and not in the conservation of our coal and iron, important as these all are; but the problem that is vastly greater than all of these is to bring about the adoption of systems of farming that will maintain or increase the productive power of American soils.

We must not deceive ourselves with general statistics which show some increase in average crop yields in some states. Thus, in the new state of Illinois the average yield of corn has increased in the past ten years, but this does not prove that Illinois soils are growing richer. During the past ten years the annual corn area of Illinois has increased from 7 million acres to 9 million acres, and the added 2 million acres are the richest black soil of the state, reclaimed by dredge ditching and tile drainage; while the 7 million acres are producing smaller crops than ten years ago.

It is sometimes asked how it is that the soils of Rhode Island and Connecticut produce more corn per acre than those of Illinois.

Because Rhode Island and Connecticut make large use of plant food materials, including much manure produced in part from Illinois corn, oats and bran. It is well to know, however, and well to remember, lest we be deceived by false arguments, that the corn acreage of Rhode Island is less than half of one township; that the corn acreage of Rhode Island and Connecticut combined is less than one-tenth of one Illinois county; and that the total corn acreage of Rhode Island, Connecticut, Massachusetts, Maine, New Hampshire, Vermont, New York, New Jersey, Pennsylvania, Delaware and Maryland all combined is less than the corn acreage of Georgia. The acreage of corn in Illinois is twice as large and the average yield three times as large as that of Georgia.

It is sometimes asked how it is that the old lands of Germany, for example, produce more wheat per acre than the United States. Lest we be deceived, we should know that Germany produces 125 million bushels of wheat, and, in addition, Germany imports 75 million bushels of wheat, 40 million bushels of corn, more than a billion pounds of oil cake, and other foodstuffs from which much manure is made; and, besides all this, Germany uses large quantities of phosphates and other commercial plant food materials.

And what does Germany export? Her principal export is two billion pounds of sugar, which contains no plant food of value.

Similar statements may be made of England, France, Belgium, Holland and of all small countries, or small states, or small districts near large cities where the productive capacity of the soil is maintained. Thus Denmark produces 4 million bushels of wheat, and in addition Denmark imports 5 million bushels of wheat, 15 million bushels of corn, 800 million pounds of oil cake and other foodstuffs, phosphates, etc., and Denmark exports 175 million pounds of butter, which contains no plant food of value, but which sells for more than these imports cost.

If anyone knows anything of American agriculture he knows that, as a general rule, old land is poorer than new land; that the practice of the present art of agriculture tends toward land ruin. Therein lies the fact that points toward future poverty for our children. If old lands were richer than new lands, then would the soils of old Virginia be more valuable than those of Illinois. The United States is one of the greatest agricultural countries, and without agriculture America is nothing.

There are but three other great agricultural countries comparable with the United States. Consider for a moment their history and present condition: China, India, Russia—names almost synonymous with famine, where millions of people die of starvation every few years.

Not only on the black cotton soils of India, where five acres of land are now required to produce one bale of cotton; not only on the black earth soils of Russia, where eight bushels is the average yield of wheat, with fallow every third year, but also on the black corn soils of America, the practice of the art of agriculture tends toward land ruin.

If the art of agriculture has reduced the productive power of American soil, then the science of agriculture must restore it, and the key to the problem for our most common agricultural land is the element phosphorus. Phosphorus is the only element of value contained in the mineral called phosphate.

There are three elements of plant food that have recognized market values—nitrogen, phosphorus and potassium, and the inventory of our natural resources must include the supply of each of these three elements.

Are our common farm lands rich in nitrogen? No. Do we have anywhere an inexhaustible supply of nitrogen? Yes. There is contained in the air over every acre sufficient nitrogen for a hundred bushels of corn every year for 700,000 years; and this supply can be drawn upon any time and always, both by us and by our children. Indeed, the nitrogen can be gotten from the air not only without expense, but with profit in the getting, because such crops as clover and alfalfa, which by means of symbiotic bacteria have power to utilize atmospheric nitrogen, are valuable crops to raise for their own sake, and where these are plowed under liberally, either directly or in manure, nitrogen is thus supplied for the production of any other crop.

What do we know regarding the element potassium? We know that if the composition of our common plowed soil were the same as the average composition of the solid crust of the earth, based upon the analysis of 2110 samples of common rocks by the United States Geological Survey, then the plowed soil of one acre would contain sufficient potassium for a hundred bushels of corn every year for 2590 years, assuming that the corn stalks are returned to the land,

either directly or in farm manure. In other words, potassium is one of the abundant elements in the earth's crust and, consequently, in all normal soils. Thus several hundred analyses by the Illinois Experiment Station have shown that the average corn belt land contains sufficient potassium in the plowed soil for a hundred bushels of corn per acre every year for as long as the time since Christ walked among men—or sufficient potassium for the average corn yield of the United States every year for as long as since Adam began to till the soil. In addition to this are the great potash mines of North Germany, covering a million acres and now estimated to contain sufficient potassium to meet the present rate of production for 190,000 years; and when these are gone the people of earth can recover potassium from the absolutely inexhaustible supply of the boundless ocean, as is already being done to some extent in Southern France.

One hundred bushels of corn contains 19 pounds of potassium and 17 pounds of phosphorus; and, while the average crust of the earth contains two and one-half per cent. ($2\frac{1}{2}\%$) of potassium, it contains only one-tenth of one per cent. (0.1%) of the element phosphorus; and the most common agricultural lands of the United States contain in the plowed soil no more total phosphorus than would be required for a crop of a hundred bushels of corn per acre during the full life of one man. If such crops had been removed from our common corn belt lands every year since Columbus discovered America they would have required every pound of phosphorus contained in that soil to a depth of four feet.

For the adoption of systems of permanent agriculture under which our common lands shall grow better instead of poorer, the nitrogen problem is to secure it from the absolutely inexhaustible supply in the air, and the potassium problem is to liberate it as rapidly as necessary from the practically inexhaustible supply in the soil, while the phosphorus problem is to get all we can and keep all we get. But what are we doing? We are exporting every year for less than 6 million dollars sufficient phosphorus for the production of 600 million dollars' worth of corn, while the element phosphorus already limits the yield of corn on the commonest corn belt land.

Few scientific facts are better established than these. A single illustration will show the possibility of increasing the productive

power of the land with proper treatment and the certainty of soil depletion even under a good crop rotation without the addition of plant food.

For sixty years at Rothamsted, England, the oldest agricultural experiment station in the world, a four-year rotation of turnips, barley, clover (or beans) and wheat has been grown on Agdell Field, where the soil is of normal composition. There are three sections in this field; no plant food has been applied to one, minerals including phosphorus to the second, and the same with nitrogen added to the third. As an average of the last twenty years, corresponding to the average yield just fifty years from the beginning of the experiments, the following results per acre were obtained:

Soil Treatment.	None.	Minerals.	Minerals and Nitrogen.
Turnips, tons5	12.6	20.9
Barley, bushels	13.7	22.2	29.2
Clover, tons4	1.9	1.7
Beans,* bushels	16.0	28.3	19.6
Wheat, bushels	24.3	38.4	36.4

*Beans were grown where clover failed.

Rapid Land Ruin in the United States

Among all the nations of the earth the United States stands first in rapidity of soil exhaustion. The improvement of seed, the use of tile-drainage, the invention and immediate adoption of labor-saving agricultural machinery, the wonderful development of cheap and rapid means of transportation, and the opening of the world's markets to the American farmer have all combined to make possible and to encourage the rapid depletion of American soils, until agricultural ruin already exists, practically, over vast areas in the older parts of this new country, the United States of America, while it is common knowledge that even in the new rich corn belt most lands that have been under cultivation for half a century are less productive now than they once were.

The almost universal practice of the civilized world to this date has been to ruin land and then to seek out newer lands on which to repeat the process even more quickly. There is extreme poverty among the people of the world almost wherever they are dependent for support upon the agricultural resources of ordinary land that has been under cultivation for two centuries.

If we are ever to adopt systems of soil improvement it must be done while we are prosperous. People living in poverty on impoverished lands have no money to invest in the improvement of their farms, no matter how great returns such investments would promise in future years. Soils that have been running down for a century cannot be built up economically in a year so as to pay an immediate profit on the improvements.

Plant Food in Rich Soils

Lands that are valuable produce large crops. Soils that produce large crops are rich soils. Rich soils contain a large store of plant food. If we are to maintain our lands in a high state of productiveness and at a high value we must maintain in our soils a large supply of every essential element of plant food.

It is worth while to remember that there are ten essential elements of plant food. If the supply of any one of these elements fails the crop will fail. These ten elements are carbon and oxygen, taken into the leaves of the plant from the air as carbon dioxide; hydrogen, a constituent of water, absorbed through the plant roots; nitrogen, taken from the soil by all plants and also secured from the air by legumes; phosphorus, potassium, magnesium, calcium, iron and sulphur, all of which are secured only from the soil.

The soil nitrogen is contained in the organic matter, or humus, and to maintain the supply of nitrogen we should keep the soil well stored with organic matter, making liberal use of clover or other legumes which have power to secure nitrogen from the inexhaustible supply in the air, the clover being plowed under either directly or as farm manure.

It is interesting to know that an acre of soil seven inches deep, if it possessed the average composition of the earth's crust, would contain sufficient iron to meet the needs of one hundred bushels of corn every year for 200,000 years, sufficient calcium for 55,000 years, magnesium for 7,000 years, sulphur for 10,000 years, and potassium for 2,600 years, but sufficient phosphorus for only 130 years.

These numbers are based upon the average composition of the earth's crust in accordance with the most recent computations of Professor F. W. Clarke, of the United States Geological Survey. They are certainly significant to the student of soil fertility, although

perhaps no soil possesses exactly the average composition of the entire crust of the earth.

As stated above, the nitrogen resting on an acre of the earth's surface is sufficient for 100 bushels of corn every year for 700,000 years, although the nitrogen contained in the plowed soil of an acre is rarely sufficient for more than fifty such crops.

Only two essential elements of plant food are becoming deficient in the ordinary soils of the United States. These are nitrogen and phosphorus, neither of which is contained in the plowed soil of our commonest lands in larger quantity than would be required for maximum crops during the full time of one life.

There are some soils whose fertility can be maintained at low-yielding power by crop rotation alone. This is on sloping land whose surface soil is washed away at least as rapidly as the fertility is removed by crops and whose subsoil is as rich or richer than the surface in mineral plant food. Some soils of this topography, with subsoils rich in mineral plant food, have been cropped for centuries with the production of two or three grain crops every ten or twelve years, the intervening years providing for the accumulation of nitrogen by legumes while the land is kept in pasture. These lands are valued at about \$10 to \$20 an acre, and this value can be maintained indefinitely without the application of farm manures or other plant food materials. But it is impossible to maintain our common prairie and level upland timber soils at their present value and productive power if we continue to remove from these lands larger amounts of phosphorus and nitrogen than are returned.

It is certainly good farm practice, and usually the best farm practice, to remove the largest possible quantities of plant food from the soil, for the simple reason that large crops require large quantities of plant food; but it is no less important to restore to the soil, when needed, even larger quantities of plant food than are removed—by turning under legume catch crops and crop residues not removed from the field, by returning manures produced on the farm, and so far as necessary by the purchase of commercial plant food, such as phosphorus in bone meal or rock phosphate, or if needed, potassium in concentrated potassium salts.

Effect of Crop Rotation

It will be well to consider in some detail the effect of crop rotation on soil fertility. Suppose we are practicing a four-year rotation, including corn for two years, oats with clover seeding the third year, and clover for hay and seed crops the fourth year. Let us assume such crop yields as have been produced and as can be produced, in normal seasons on the richest, best treated land, with good seed and good farming, namely, 100 bushels of corn per acre, 100 bushels of oats and 4 tons per acre of clover, including, perhaps, 3 tons in the hay crop and 1 ton in the seed crop. If we do not succeed in securing these yields we should at least try to make such yields possible, and we should approach as near to them as we can. On the best treated land at the University of Illinois 88 bushels of corn per acre have been produced as an average of the last six years, and on three different soil experiment fields in the state we have harvested more than 90 bushels of oats per acre.

Let us first consider the phosphorus required for this rotation. The two crops of corn will each require 23 pounds, 17 for the grain and 6 for the stalks; the oat crop will require 16 pounds of phosphorus, about 11 for the grain and 5 for the straw, and the 4-ton crop of clover will require 20 pounds of phosphorus. Thus we see that 87 pounds of the element phosphorus will be required for the rotation. If we leave the stalks on the land the requirement is reduced to 70 pounds of phosphorus, or to about 17 pounds a year per acre.

Suppose the soil contains in the first 7 inches 1200 pounds of phosphorus per acre, which is about the average of the principal type of soil in the corn belt; how many years would be required to remove this amount from the land if it could be drawn upon at this rate? Only seventy years. On the other hand, suppose with this crop rotation we can secure from the soil the equivalent of only one per cent. of the phosphorus contained in the first 7 inches. This would be only 12 pounds of phosphorus a year, which would necessarily reduce the crop yields much below the amounts suggested above, and with the further reduction in the total amount of phosphorus year by year, the crop yields must be reduced accordingly.

On the ordinary soils of the United States ultimate failure is the only future for this system of farming, even if we consider the

phosphorus alone; although the phosphorus may be returned in bone meal, in acid phosphate, in raw rock phosphate, or in sufficient amounts of farm manure.

If we consider the element nitrogen in this system of farming we find that 200 bushels of corn require about 200 pounds of nitrogen, aside from that required for the stalks, and the stalks must be returned to the land without burning, otherwise the 96 pounds of nitrogen required for the two crops of stalks, will also be removed from the land. The oats crop will remove 97 pounds of nitrogen, making 297 pounds per acre for the corn and the oats.

The four tons of clover will contain about 160 pounds of nitrogen and the clover roots and stubble about one-half as much as the tops, or 80 pounds per acre. If all of the nitrogen contained in the entire clover crop is taken from the air the rotation would add only 80 pounds of nitrogen to the soil, while the corn and oats would remove 297 pounds.

How, then, is it possible to maintain the supply of nitrogen by this rotation? It is not possible. Under such a rotation, with all crops removed except the corn stalks, the supply of nitrogen grows less and less. Where this rotation is successful for a time it is due to the fact that the soil nitrogen has been drawn upon year by year, while the chief effect of the clover has been to extract phosphorus from the soil for its own growth and for the use of succeeding crops.

There is another point to be considered in reference to nitrogen. On land that is capable of furnishing sufficient nitrogen for even a 50-bushel crop of corn the clover crop will undoubtedly draw a third of its nitrogen from the soil and not more than two-thirds from the air. Consequently, since two-thirds of the nitrogen in the entire plant is removed in the tops, the roots and stubble will leave no more nitrogen in the soil than the plant takes from the soil. How, then, can we maintain the supply of nitrogen in the soil? By plowing under sufficient clover or by applying sufficient farm manure or, better, by using both of these means.

If all the crops grown in the rotation are fed, including the corn stalks, containing a total of 533 pounds of nitrogen from four acres, and if three-fourths of this, or 400 pounds, are returned in the manure, we have sufficient to replace the 393 pounds removed in the corn and oat crops, and we may assume that the 160 pounds of nitrogen removed in the clover came from the air. Of course, some

additional nitrogen will be saved in the straw and stalks which are used directly for bedding and not for feed.

How shall the grain farmer maintain the nitrogen in his soil? Possibly this can be done by plowing under everything produced except the grains and the clover seed, preferably only one corn crop being grown in the rotation.

The problem of maintaining the nitrogen in live stock farming becomes easier if we extend the rotation to include about two years of pasture, using a mixture, perhaps, of red clover, alsike, timothy and red top instead of seeding red clover only with the oats. In this case three grain crops, as corn, oats and wheat, or corn two years and oats one year, could be grown during the six-year rotation, the land being kept in meadow and pasture one-half of the time.

Use and Value of Farm Manure.

Farm manure always has been, and without doubt always will be, the principal material used in maintaining the fertility of the soil; but it is an unquestionable fact that the greatest source of loss to American agriculture to-day is in the enormous waste of farm manure. If corn were worth \$1.05 a bushel, then the average annual value of the corn crop of the United States would be equal to the average value of the total farm manure annually produced in this country.

The positive or intrinsic value of farm manure lies in the amounts of valuable plant food which it contains. It also possesses an important indirect value as a soil stimulant, due to its power as it ferments and decays in contact with the soil, to liberate from the soil plant food that would not otherwise become available so quickly. There is still another distinct value in farm manure, due to the fact that it makes the soil more porous and spongy and thus increases the power of the soil to absorb and retain moisture and to resist surface washing. This third value of farm manure is due to improvement in physical condition.

The value of farm manure for its physical improvement of the soil is commonly fully appreciated, and frequently overestimated by popular agricultural writers, while its value for the plant food which it supplies and for that which it liberates from the soil is sometimes almost ignored. There is no good excuse for erroneous teaching regarding these different values, because there exists a vast amount

of positive information both from practical experience and from exact scientific investigations.

Thus, organic matter from peat beds hauled out and spread on the land and incorporated with the soil produces no such effects on crop yields as are produced by good farm manure. Why? Because the peat does not decay readily, so as to furnish plant food either by its own decomposition or by liberating it from the soil; and yet the peat has as great power as farm manure for physical improvement of the soil.

Manure made from clover hay and heavy grain rations has much greater value than manure made from wheat straw. Why? Is it because they affect the physical conditions of the soil in different ways? No. The great difference in value is due to the difference in plant food and in rapidity of decay.

At the Rothamsted Agricultural Experiment Station, England, on a field to which no manure and no plant food have been applied the average yield of wheat has been 12.9 bushels per acre for more than half a century. Land treated with a heavy annual application of farm manure has produced 35.5 bushels of wheat per acre as an average during 55 years. Another field treated with commercial plant food without organic matter has produced 37.1 bushels of wheat per acre as an average during the same time. The latter field received a little less plant food than was furnished in the manure, thus furnishing ample proof of the value of plant food supplied and showing that the physical effect of the farm manure was by no means so important.

Nevertheless, the physical effect should not be overlooked. Under certain seasonal conditions this physical value may be very important. Thus, in the very dry season of 1893 at Rothamsted the land fertilized with commercial plant food produced only 21.7 bushels of wheat per acre, while the farm manure plot produced 34.2 bushels the same year.

In semi-arid regions the physical condition of the soil and its power to absorb and retain moisture may be the controlling factor in crop yields, but where the average annual rainfall is 28 inches as at Rothamsted or 37 inches as in Illinois, with a fairly uniform distribution during the growing season, the physical conditions of the soil in relation to crop yields may be compared to the shelter and other physical surroundings provided for live stock. In other words,

under normal conditions the controlling factor is food, for crops as well as for live stock.

While manure has some value for physical improvement and a larger value in its power to liberate plant food from the soil, it should be clearly understood and always borne in mind that the great value of farm manure, especially in profitable systems of permanent agriculture, is due to the plant food it contains, and that the greatest problem in the handling of farm manure is to prevent the loss of plant food.

The value of average fresh farm manure is about \$2.25 a ton, either when determined by chemical analysis on the basis of present market values for the plant food contained in the manure or when determined by the value of the increased crop yields produced when the manure is applied to the fields in ordinary crop rotations.

This means that a pile of average fresh farm manure containing 100 tons is worth \$225. If exposed to leaching from heavy rains during only two or three months in the spring the value will be reduced, as a rule, from \$225 to about \$150 by the loss of plant food without much reduction in total weight. Indeed, the total weight is frequently increased under such conditions because the rain water that remains in the manure may be in greater amount than the urine that has been washed out. Fermentation and additional leaching during the summer may easily reduce the value to \$100 or less. There are two satisfactory methods for handling manure. One of these is to haul and spread the fresh manure daily or at least two or three times a week. For this purpose a manure spreader, or, at least, a wagon used for this work only, is very useful and almost necessary. The other method is to allow the manure to accumulate in the stall or covered feeding shed while it is constantly tramped by the animals and kept moist by the liquid excrement, sufficient bedding being used to absorb the excess and to keep the stock clean, and then to haul and spread it on the land when conditions permit. It should not be left, however, to dry out and heat and decompose in the stalls or sheds long after the animals have been turned out to pasture.

Loss of Fertility by Selling Farm Produce

Every system of farming should be so planned as to be both profitable and permanent, which requires that the productive capacity

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of the land must be maintained. We must understand, then, what the soil contains, what materials are required to produce crops, in which parts of the crops these different materials are deposited, so as to know what part of the produce may be sold and what part should be retained on the farm; also what is done with these important plant food materials when the crops are fed to live stock.

The older prairie and upland timber soils of the United States are, as a rule, exceedingly rich in potassium but relatively deficient in both nitrogen and phosphorus. In the worn hill lands nitrogen is usually more deficient than phosphorus, while in the average long-cultivated prairie soil phosphorus is more deficient than nitrogen.

When grain crops are produced, as corn, oats and wheat, about two-thirds of the nitrogen and three-fourths of the phosphorus, but only one-fourth of the potassium required for the crop are stored in the grain or seed, while about one-third of the nitrogen, one-fourth of the phosphorus and three-fourths of the potassium are stored in the straw or stalks.

Thus a large crop of corn, 100 bushels to the acre, will contain about 100 pounds of nitrogen in the grain and 48 pounds in the stalks, 17 pounds of phosphorus in the grain and 6 pounds in the stalks, 19 pounds of potassium in the grain and 52 pounds in the stalks. Quite similar relations exist between the grain and straw of other crops.

Now, with these facts in mind, it is plain to see that a system of farming by which the grain is sold and only the stalks and straw are kept on the farm and returned to the soil carries off in the grain much of the nitrogen and phosphorus. In both of these elements most soils are more or less deficient, while the potassium, of which the normal soil contains an almost inexhaustible supply, enough in the first 7 inches for 100 bushels of corn per acre every year for seventeen centuries, is largely returned in the straw and stalks.

It should be remembered that legume crops, as clover, alfalfa, cowpeas and soybeans, are rich in both nitrogen and phosphorus, $3\frac{1}{2}$ tons of clover hay containing as much phosphorus and 40 pounds more nitrogen than 100 bushels of corn.

If the crops are fed to live stock, it is well to know that about one-fourth of the nitrogen and one-fourth of the phosphorus are retained in the flesh and bone of the animal, while three-fourths of the nitrogen and phosphorus and practically all of the potassium are

returned in the solid and liquid excrement. Thus we have another process of separation by which part of the needed nitrogen and phosphorus leaves the farm with the animals, while the potassium is again returned, even though it may not be needed.

It should be a plain fact that manure made from animal excrements with straw or stalks for bedding must be deficient in nitrogen and still more deficient in phosphorus, but rich in potassium, as compared with the requirements of the crop; and this is especially noteworthy when the manure is to be used on land already deficient in nitrogen and phosphorus but well supplied with potassium.

In the case of nitrogen the difficulty can be overcome by making a liberal use of clover or other legumes in the crop rotation and as catch crops, turning under these crops and crop residues so far as practicable. Legume crops may also be used in pastures to a considerable extent, thus securing nitrogen from the air to balance the deficiency in the manure. With the phosphorus the difficulty is greater, because the proportion contained in the manure is less and there is no such ever-present inexhaustible supply as in the case of nitrogen.

Increasing the Value of Farm Manure

It must be apparent that to increase the value of farm manure we should add phosphorus to it. Thus, we can balance manure, and when used on soils rich in potassium in rotations with nitrogen-fixing legume crops we can provide plant food in a balanced ration to meet the needs of the maximum crop yields. By these means we can check the progress of soil exhaustion and even gradually increase the fertility and productive capacity of the land. Indeed, we can thus profitably enrich such land even beyond its virgin fertility.

By far the cheapest form of phosphorus is fine-ground raw rock phosphate. This material is but slightly available for the use of crops if applied to soils deficient in decaying organic matter, but if applied in intimate connection with rotting manure it is thus made soluble and available for plant growth.

Certainly one of the most profitable, and probably the most profitable, method of maintaining the necessary supply of phosphorus in the soil is to put back into the manure in the form of fine-ground raw rock phosphate somewhat larger amounts of phosphorus than the animal has retained in his bones. It is well for a time at

least to put back larger amounts than the animals retain, because the soils are already deficient in phosphorus and also because there may be some waste of manure.

These statements are based both upon the chemical analysis of soils and crops and manures and also upon carefully conducted field experiments covering many years. Several experiment stations have furnished some valuable data from phosphate investigations, and a large amount of information is rapidly accumulating from our more extensive work in Illinois, but the most complete experiments of long duration are reported by the Ohio Experiment Station. Where 40 pounds of fine-ground rock phosphate, costing about 15 cents, were added to each ton of fresh manure and 8 tons of manure per acre were applied for a three-year rotation of corn, wheat and clover, the value of the increase in crop yields was equal to \$3.49 for each ton of manure used, while the manure was worth only \$2.33 per ton without the phosphate in case of fresh stall manure and only \$1.72 per ton for open yard manure, these results being the average of 11 years' experiments on three different series of plots, based upon increased yields valued at 35 cents a bushel for corn, 70 cents for wheat, and \$6 a ton for clover hay. If we deduct the cost of the phosphate used we still have what might be termed a net value of \$3.34 a ton for the phosphated stall manure.

Of course it would be equally appropriate, and possibly more so, to speak of "manured phosphate" instead of "phosphated manure," because the rock phosphate actually furnishes the needed and deficient element, phosphorus, while the manure helps to make it available. On this basis we may say that the value of 40 pounds of rock phosphate is increased from 15 cents to \$1.16 by mixing with a ton of stall manure, after deducting the value of the untreated manure.

The most important fact to keep in mind, however, is that both the manure and rock phosphate are much more valuable when used together than when used separately, because manure is deficient in phosphorus and rock phosphate does not act satisfactorily except in connection with rotting organic matter. As a rule, it is better to use sufficient rock phosphate with each ton of manure, so as to supply about 200 pounds of rock phosphate per acre for each year in the crop rotation.

It should be emphasized that the element phosphorus is the key to permanent agriculture on our great body of agricultural lands;

and the highest present duty of the people of the United States is to see to it that provision is made whereby our own phosphates, both high grade and low grade, may be applied to these soils, where they will remain until removed in the crops; and where, if the farm manures and all other recoverable residues are returned to the soil, they may be used for the production of crops over and over again.

Exportation of phosphate should cease, gradually if necessary, the exportation being limited to a million tons a year with an annual reduction of a hundred thousand tons, so that none would be exported after ten years. The Federal Government should undoubtedly control so far as necessary the mining and distribution of these phosphates with some limitations upon the profits that may be exacted by the phosphate owner from the agricultural people, in order that farmers and landowners may be encouraged to apply to their lands more phosphorus than is taken out in the crops removed.

FARM TENURE IN THE UNITED STATES

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The census of 1900 reported an area of 841 million acres of land as included within farms; this is about forty-five per cent. of the entire land area of continental United States. The census divides farm lands into two parts: (1), improved or cultivated land; and (2), unimproved land consisting of woodland, permanent pastures, etc. In 1900 the improved land was a trifle less than half of the total farm area, or 415 million acres, which is 21.6 per cent. of the land area of the United States. There were in that year 5,739,657 farms, having an average area of 146.6 acres each, of which 72.3 acres were improved land. Statistics of agriculture have been gathered with increasing fullness by each census since 1850. Data concerning tenure were first obtained in the census of 1880.

The average number of acres per farm and the average number of acres of improved land are given for each census in the following table:

Census of	Av. acreage per farm.	Av. acreage of improved land per farm.
1850	202.6	78.0
1860	199.2	79.8
1870	153.3	71.0
1880	133.7	71.0
1890	136.5	78.3
1900	146.6	72.3

The average farm decreased in size from 1850 to 1880, and since that time has increased. Whether this recent increase is to continue and whether it has significance, time alone will show.

Viewing the country by geographical sections, the greatest increase in farm area has taken place in the Western section, including the states of the Rocky Mountains and the Pacific Slope, and in the North Central States, including those north of the Ohio River and the south boundary of Missouri and Kansas, and from Ohio

westward to include the Dakotas, Nebraska and Kansas. In the north Atlantic section, including New England, New York, New Jersey and Pennsylvania, and the south central section, including the states south of the Ohio River and the south boundary of Missouri and Kansas, and from Kentucky, Tennessee and Alabama westward to include Oklahoma and Texas, the average farm has increased only between 1890 and 1900, while in the south Atlantic section bordering the Atlantic, including the states south of Mason and Dixon's line, with West Virginia, there has been a steady decrease in the size of farms from 1850 to 1900.

The column giving the average number of acres of improved land per farm shows irregularities, with a general decrease from the earliest censuses to the last one. Viewing the country as before, by sections, the north Atlantic and south Atlantic sections show a continuous decrease in area of improved land; the south central section shows a general but not regular decrease; the north central section shows an increase from 1850 to 1900; while the western section shows an increase to 1880, and since that time a decrease.

The 5,739,657 farms in the United States in 1900 were distributed as follows as regards tenure:

Farms operated by	No. of farms.	Percentage of all farms.
Owners	3,149,344	54.9
Part owners	451,515	7.9
Owners and tenants	53,299	0.9
Managers	59,213	1.0
Tenants for cash	752,920	13.1
Tenants on shares	1,273,366	22.2

The first class comprises those farms owned entirely by the occupants; the second, those owned in part by the occupants and in part by some other person or persons from whom they are rented by the occupants; the third, a small class, includes those occupied in part by the owners of the entire farm; the remainder being worked by tenants; while the fourth class comprises farms owned by individuals or corporations and carried on by salaried managers. In earlier censuses all these four classes have been considered as owned farms, and for purposes of comparison they will be grouped together. The last two classes comprise the rented farms; the first for a fixed money rental, the second for a share in the product.

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In 1900, tenantry was most common in the southern states, where only fifty-three per cent. of the farms were worked by their owners, the remaining forty-seven per cent. being operated by tenants. It was least common in the western states where only one-sixth were rented. In the northeastern states twenty-one per cent. were rented, and in the north central states twenty-eight per cent. The lowest proportion was in the State of Maine, where fewer than one in twenty farms were worked by tenants, while the highest proportion was in Georgia, where three-fifths of the farms were rented.

Farms carried on by managers were most numerous in the far western states, where this class of farms consists mainly of great cattle or sheep ranches. There is little difference among the different sections of the country in the prevalence of the two kinds of rental, whether for cash or shares.

The foregoing table shows that less than two-thirds, or 64.7 per cent., of all farms were worked by their owners, and that more than one-third, or 35.3 per cent., were operated by tenants. It shows, furthermore, by comparison with similar returns from earlier censuses, that the proportion of tenant farmers has greatly increased. Thus, in 1880, three-fourths, or 74.5 per cent., of all farms were worked by their owners and only one-fourth by tenants.

It must not be hastily assumed, however, that because the number and proportion of rented farms have greatly increased that we are drifting toward a system of landlordism. If owned farms have increased in number as rapidly as has the farming population, or the occupation class of those engaged in agriculture, it would appear that there has occurred no relative diminution of the owning class, and we must look elsewhere for those who have rented the farms.

Out of every 1000 males engaged in agriculture in 1880, 422 owned their farms; in 1900, the corresponding number was 423, or practically the same. Out of the same 1000 persons in 1880, 145 rented their farms, and in 1900 this number had increased to 231. The remainder of the 1000 persons, 433 in 1880 and 346 in 1900, were farm laborers. This class shows a great decrease in the twenty years, and leads to the conclusion that the increase in renters came from the class of farm laborers and not from the owners, and indicates progress and not retrogression, since it is a step upward from laborer to renter.

The total number of males engaged in agricultural pursuits increased twenty-four per cent. in the twenty years between 1880 and 1900. In the same period the total number of farms increased forty-three per cent., showing, as above, by another method, a much greater increase in the number of farms than in persons engaged in farming.

The number of farms worked by their owners increased twenty-four per cent. in the same time, the same proportion as the increase in agricultural workers. In the same period, rented farms increased not less than ninety-nine per cent., or four times as rapidly as the owned farms. Farms rented for cash increased 134 per cent., and those rented on shares eighty-one per cent.

In earlier times when public land suitable for farming could be had for the asking, the farm laborer who wished to better his conditions availed himself of the liberal land laws and secured for himself a homestead from the public lands, becoming at one step a proprietor. In those days there were, in all probability, few rented farms. Now, however, with the public lands available for cultivation without irrigation practically gone, he is obliged to purchase at high prices from private owners, or to lease. In many, perhaps most, cases he is unable to purchase, and therefore leases in the hope of being able to purchase later.

The following table shows the average size of farms and the amount of improved land per farm, under various forms of tenure, and the proportion of the farm which was improved:

	Farm areas.	Improved land.	
	Acres.	Acres.	Percentage.
Average size of all farms	146.6	72	49.3
Wholly owned	134.	69	51.2
Partly owned	277.	126	45.4
Owned and tenanted	172.	102	59.5
Managed	1,514.	189	12.5
Rented for cash	103.	57	55.1
Rented on shares	92.	65	70.3
All classes of ownership	174.	78	44.8
Both classes of rental	96.	62	64.6

The owned farms were much larger than those rented, both as regards total and cultivated area. On the other hand, a larger part of the rented farms was cultivated than of the owned farms. The

largest farms were those under managers, and of these the proportion under cultivation was far the least. Of the two classes of rented farms, those rented on shares had a much larger proportion of cultivated land than those rented for cash.

The following table classifies owners and tenants of farms and farm laborers, by age, in percentages of the total of each age group:

Age in years.	Percentage of all in age groups.		
	Owners.	Tenants.	Laborers.
10 to 24	2	6	92
25 to 34	26	32	42
35 to 44	53	30	17
45 to 54	64	27	9
55 to 64	74	19	7
65 plus	81	14	5

Out of every 100 persons under twenty-five years of age engaged in agricultural pursuits, ninety-two were laborers, six were tenants, and only two owned farms. Between twenty-five and thirty-four years, there was a large increase among owners and tenants and a great decrease among laborers. This decrease among laborers continued through all ages, while the proportion of tenants decreased in each age group above thirty-four years. On the other hand, the proportion of owners increased throughout, and was greatest at the most advanced ages.

The following table shows a classification by age of farm owners, tenants and laborers in proportions of the total number of each of these three classes:

Age in years	Percentage of all in classes.		
	Owners.	Tenants.	Laborers.
10 to 24	2	10	71
25 to 34	15	32	18
35 to 44	25	25	6
45 to 54	25	19	3
55 to 64	19	9	1
65 plus	14	5	1

Of all farm laborers, seventy-one per cent. were under twenty-five years of age, and the proportion rapidly diminished with advancing age. Tenants increased up to thirty-four years, and then decreased through all ages. Owners increased up to forty-five years and then decreased slowly.

Both these tables show unmistakably a strong movement with
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advancing age away from the laboring class to the tenant class, and thence in turn to the owner class.

Rented farms were most numerous among cotton farms, i. e., farms devoted mainly to the culture of this textile; of all rented farms, thirty-six per cent. were cotton farms; hay and grain farms formed twenty-six per cent.; and live stock, sixteen per cent. Of all cotton farms, nearly two-thirds were rented; of hay and grain farms, nearly two-fifths; and of live stock farms, only one-fifth.

The following table shows the average value per farm, under different tenures, of land and buildings and the average value per acre of the land:

	Land.	Buildings.	Land and Buildings.	Land value per acre.
Owners	\$2,124	\$711	\$2,835	\$15.84
Part owners	3,627	721	4,348	13.11
Owners and tenants	2,961	855	3,816	17.24
Managers	11,627	2,379	14,006	7.68
Cash tenants	2,099	423	2,522	20.83
Share tenants	1,854	386	2,240	20.05

The greatest value, both of land and buildings, is in the class of managers, due of course to the large area and the corresponding extent of the establishment. The smallest, both as to land and buildings, is in the two tenant classes; the first because the area of the farm is small, and the second because a large proportion of the occupants are colored who require less costly structures.

The following table shows the value of implements and machinery on farms classified by different forms of tenure:

	Average value.		Percentage
	per farm.	per acre.	value of land.
Owners	\$139	\$1.04	6.6
Part owners	186	0.67	5.1
Owners and tenants	169	0.99	5.7
Managers	788	0.52	6.8
Cash tenants	92	0.89	4.4
Share tenants	89	0.96	4.8

In average value per farm, the cost of implements and machinery was very high in those farms under managers, owing to the large area and value, and lowest in the rented farms owing to their small extent and the race of a large proportion of the occupants.

In value per acre, the class of managers is very small, while the tenant class is not much smaller than the owner class.

In percentage of value of land, the tenant class is smallest, for the reasons before given.

The following table shows for rented farms the percentage which the number of owners of one farm, two farms, etc., bore to the total number of owners, the percentage of the total number of rented farms thus held, and the corresponding percentages of the total acreage and value in each group:

No. of farms.	Percentage of owners.	Percentage of farms.	Percentage of area.	Percentage of value.
1	80.0	52.0	62.3	66.9
2	11.4	14.8	13.7	14.3
3 and 4	5.4	11.6	9.4	8.4
5 to 9	2.3	9.7	7.0	5.2
10 to 19	0.7	6.0	4.2	2.9
20 and over	0.2	5.9	3.4	2.3

In further explanation of this table, eighty per cent. of all owners of rented farms owned only one farm each; fifty-two per cent. of all rented farms were thus owned; the area of these farms was 62.3 per cent. that of all rented farms, and the value 66.9 per cent. of the value of all. Furthermore, 0.2 per cent. of all owners of rented farms owned twenty or more farms each, and collectively they owned 5.9 per cent. of all farms, 3.4 per cent. of the area, and 2.3 per cent. of the value.

This table measures the extent of the concentration of farm lands and values in few hands. While such concentration is apparent, it has not yet made great progress. Those who owned twenty or more farms numbered 3,244, held an average of thirty-five farms each, with an average area of 1,959 acres.

The degree of concentration in the ownership of rented farms is further characterized by the following statements. Fifty-five per cent. of the owners possessed forty-seven per cent. of the farms with only twenty-six per cent. of the area and but ten per cent. of the value; thirty-seven per cent. of the owners had thirty-eight per cent. of the farms, forty-four per cent. of the area, and forty-six per cent. of the value; while eight per cent. of the owners had fifteen per cent. of the farms, thirty per cent. of their area, and no less than forty-four per cent. of their value. Thus the largest and most valuable of these farms were in few hands.

The owners of not less than seventy-five per cent. of the rented farms lived in the county in which the farms were situated; fifteen

per cent. lived in the same state, but outside of the county; five per cent. lived outside of the state; and the remaining five per cent. was not reported. Less than 0.1 per cent. lived in foreign countries.

The following table shows for rented farms the percentage which the number of owners of farms, their acreage and value, in each specified class of size of farm bore to the total number, area, and value:

Acreage per farm.	Percentage of owners.	Percentage of farms.	Percentage of area.	Percentage of value.
Under 100	55.3	41.9	16.6	21.9
100-200	26.4	23.7	25.2	30.0
200-500	14.8	20.2	29.0	30.4
500-1000	2.5	7.6	11.3	9.2
1000-2500	0.8	4.6	7.4	5.2
2500 plus	0.2	2.0	10.5	3.3

In interpretation of this table, the rented farms having an area less than 100 acres were owned by 55.3 per cent. of all owners, numbered 41.9 per cent. of all rented farms, had collectively an area of 16.6 per cent., and a value of 21.9 per cent. of all such farms.

The percentages of value were greater than those of area in the smaller farms, and decreased relatively among the larger farms. Thus, whereas among the farms of less than 100 acres the total area was only 16.6 per cent. of all rented farms and the value 21.9 per cent. of the value of all, the farms of 2500 acres and more comprised 10.5 per cent. of all the rented area and only 3.3 per cent. of all the rented value.

From this table it will be seen that one per cent. of the owners possessed 6.6 per cent. of the farms, 17.9 per cent. of the area, and 8.5 per cent. of the value.

The following table shows for rented farms the percentage which the number of owners, of farms, their acreage and value, in each specified class of value, bore to the total number, area and value:

Value per farm.	Percentage of owners.	Percentage of farms.	Percentage of area.	Percentage of value.
Under \$1,000	38.8	30.9	13.5	4.4
\$1,000-\$2,000	15.8	15.6	11.9	6.0
\$2,000-\$5,000	24.1	23.8	24.6	21.5
\$5,000-\$10,000	13.2	14.5	19.8	24.3
\$10,000-\$25,000	6.9	10.3	17.1	26.4
\$25,000 plus	1.2	4.9	13.1	17.4

The rented farms valued at less than \$1000 were owned by 38.8 per cent. of all owners of rented farms, were in number 30.9 per cent. of all, comprised 13.5 per cent. of the area of all such farms, and had 4.4 per cent. of their value.

From the above table it appears that 8.1 per cent. of the owners held 15.2 per cent. of the farms, 30.2 per cent. of the area, and 43.8 per cent. of the value; and further, that 1.2 per cent. of the owners held 4.9 per cent. of the farms, 13.1 per cent. of the area, and 17.4 per cent. of the value.

Farms occupied by white farmers were 86.6 per cent. of all farms; those of negro farmers were 13.0 per cent.; the small remainder, 0.4 per cent., representing those of Indians, with a few Chinese and Japanese.

Of the white occupants, 70.5 per cent. were owners, 9.6 per cent. were lessees for cash, and 19.9 per cent. were lessees for shares in the product.

Of the colored occupants, only 25.4 per cent. were owners, while 36.6 per cent. were lessees for cash, and 38.0 per cent. were lessees for shares in the product.

Thus the proportion of rented farms to all farms differs widely between the two races—29.5 per cent. for whites and not less than 74.6 per cent. for the colored.

Of all farms operated by colored farmers, 96.5 per cent. were in the states lying south of Mason and Dixon's line, the Ohio River, and the south boundary of Missouri and Kansas, and from the Atlantic westward to Texas. The further discussion on tenure and race will be confined to this area.

In the South in 1900 there were 2,620,391 farms, of which 1,879,721, or 71.7 per cent., were occupied by whites, and 740,670, or 28.3 per cent., by colored. The farms occupied by whites had an average area of 172 acres, and those occupied by colored farmers an average area of only fifty-two acres. Each "white" farm contained fifty-five acres on the average and each "colored" farm thirty-one acres of improved land. Of the entire area in farms, whites occupied 89.3 per cent. and colored occupied 10.7 per cent. Of the entire area of improved land, whites occupied only 81.6 per cent., and colored 18.4 per cent., a proportion much greater than that of farm land.

Of all "white" farms, 63.9 per cent. were owned by the occu-

pants and 36.1 per cent. were rented. Of the "colored" farms, only 25.4 per cent. were owned and 74.6 per cent. were rented, showing very decided differences between the two races. Of all owned farms, 86.4 per cent. were "white" and 13.6 per cent. were "colored." Of all rented farms, 55.1 per cent. were "white" and 44.9 per cent. were "colored." The renting of farms was vastly more prevalent among the colored than among the white population of the South.

The following table shows the average area of owned and rented farms and of the improved land of each race:

Class.	Average area in acres.	
	White.	Colored.
All farms	172	52
Owned farms	217	73
Rented farms	92	43

Class.	Average area of improved land in acres.	
	White	Colored
All farms	55	31
Owned farms	61	33
Rented farms	44	31

White farms were in each case much larger than colored, although the disproportion was not as great with improved land in farms as in the total area of farms, showing that with the colored farms the proportion of improved land was greater. The following table measures this and also demonstrates that rented farms were more fully developed than were owned farms:

Class.	Percentage of improved land in farms.	
	White.	Colored.
Owned farms	28.0	44.6
Rented farms	49.2	71.6

Of the total acreage in white farms, 80.6 per cent. was owned and 19.4 per cent. was rented; of the acreage of colored farms, only 36.6 per cent. was owned and 63.4 per cent. rented. Of the total owned acreage, whites had 95.0 per cent., and colored only 5.0 per cent. Of the rented acreage, whites had 72.5 per cent. and colored 27.5 per cent.

Of the total area of improved land owned, whites held 92.3 per cent. and colored 7.7 per cent., the latter somewhat more than their proportion of the total farm acreage. Of the improved land rented, whites held 63.7 per cent. and colored 36.3 per cent. This last is also a larger proportion than of the total farm area.

Of the improved area of white farms, 71.0 per cent. was owned

and 29.0 per cent. rented; of the improved area of colored farms, 26.5 per cent. was owned and 73.5 per cent. rented. Thus the proportions for the two races are very nearly reversed.

The average value of the white owned farm was \$2381, and of the colored farm only \$807; of the white rented farm \$1362, and of the colored farm \$606. The white owned farm thus had a value nearly three times as great as that of the colored owned farm, and the white rented farm a value more than double that of the colored rented farm. These differences in value, however, are merely a reflex of the difference in area, for in value per acre there is little difference between the farms of the two races. Owned farms, both of white and of colored, were valued at \$11 per acre, and rented farms of white and colored at \$15 and \$14 per acre, respectively.

The value of the product per white owned farm was \$656, and of the colored owned farm \$381; for white rented farm \$461, and for colored rented farm \$347, the white farms of the same tenure producing more than the colored, owing to their greater area. The production per acre for white owned farms was \$3.02, and for colored owned farms \$4.51; for white rented farms \$4.98, and for colored rented farms \$8.04. These differences are due to the varying proportions of improved land, as shown in the following statement. The product per acre of improved land was for white owned farms \$10.79, and for colored owned farms \$10.11; for white rented farms \$10.42, and for colored rented farms \$11.26.

The ratios of production to value of farms varied through quite a wide range. The proportions were, for white owned farms twenty-seven per cent., for colored owned farms forty-one per cent.; for white rented farms thirty-four per cent., and for colored rented farms fifty-seven per cent. The larger the proportion of improved land the larger the percentage of product.

At the close of the Civil War the negro held practically no farm land. In the forty-four years which have elapsed, he has acquired five per cent. of the owned farm land of the South and 7.7 per cent. of the owned improved land, besides renting 27.5 per cent. of the rented farm lands and 36.3 per cent. of the rented improved land. The value of the farms he owns is five per cent. of the value of all owned farms, and the value of those he rents is 27.0 per cent. of the value of all rented farms. The products of his farms are 23.0 per cent. of all agricultural products of this part of the country.

WHAT MAY BE ACCOMPLISHED BY RECLAMATION

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In the conservation of natural resources reclamation plays a very large part, both directly and indirectly. There is involved in the idea of reclamation not merely the better use of lands otherwise practically valueless, but in connection with this the creation of opportunities for homes; also, but secondary to this, is frequently brought in the storage or disposal of waters in such way as to render possible the use of these waters for power or other industrial purposes, including the manufacture of electricity for lighting, heating and transportation.

The word "reclamation" as now commonly employed involves the conception of regulating the water supply for a given area of land, which, under natural conditions, has an excess or deficiency of moisture so great that agricultural values are nearly or completely destroyed. We speak of reclaiming the swamp or overflowed lands by keeping the waters off them, or of reclaiming arid lands by bringing waters to them at the time and in the quantities best adapted for the development of plants useful to mankind.

The National Government has been and still is an owner of vast areas of reclaimable land. In the early history of the life of the nation, individuals initiated works for draining and reclaiming areas of low-lying but very fertile land. Later, to promote the reclamation of these, Congress passed laws which, in general terms, conveyed to the separate states the title of the swamp and overflowed lands within their borders in order that these lands might be reclaimed by the state through corporate as well as individual activities. The grants were not, however, sufficiently well guarded to secure the desired results, and although practically all of the states eagerly sought and acquired the swamp lands and passed them over to individuals and corporations, very little was ever done to reclaim and utilize these lands. They became objects of speculation, and vast areas still remain in the hands of men who are holding them for rise in prices. The experience of this kind of legislation had

strong influence on subsequent debates in Congress on measures to promote the reclamation of arid lands. The failure of the states to secure reclamation of the swamp lands was a very powerful argument against giving the arid lands to the states in which they were situated, although very convincing pleas were advanced why this work should be confided to the state officials.

There remains yet to be worked out some feasible scheme by which the vast areas of swamp and overflowed lands whose title is now in private ownership may be reclaimed, subdivided, and put in the hands of men who will cultivate them. The soil of these swamp lands is extremely fertile and with effective systems of drainage the lands are capable not merely of supporting large and prosperous agricultural communities, but will be sources of strength to each commonwealth in which they are situated, instead of being, as now, breeding places of mosquitoes and other pests, centers of disease and a menace to land values in the neighborhood.

It may be possible after diffusing information and stimulating public interest to bring together the diverse interests and ultimately to reclaim the large tracts of the swamp land donated to the states, but this can come about on a broad scale only after careful study of the entire situation and the adoption of far-reaching plans. It is, of course, possible to take up one particular tract and build levees, dikes and drains, but it frequently happens that the plans made for one area are such as seriously to interfere with the development of another or more important piece of land; or the system proposed for several areas may be such as not to provide adequate waterways for tracts higher up, and thus disaster may follow the carrying out of schemes which are not sufficiently broad to take in all the surrounding conditions. Where, on the contrary, plans for reclamation start with a full knowledge of all the conditions as they exist and a comprehension of ideal results to be attained, it should result that with the execution of these plans, great tracts of fertile but water-clogged soil will be made available for agriculture.

The term "reclamation" has of late been popularly used with a somewhat restricted meaning, as applying to the irrigation of arid lands and the bringing on of a needed amount of water at proper seasons. Reclamation in this sense has been undertaken by the National Government under the terms of an act passed June 17, 1902, which creates a special fund in the treasury out of the pro-

ceeds of the disposal of public lands. This fund is entirely distinct from the general revenues of the Government, derived by imposts or taxation, and hence it is not subject to many of the constitutional limitations which are imposed upon acts of Congress. The expenditure of the reclamation fund has been placed by Congress in the hands of the Secretary of the Interior for the purpose of making surveys and examinations and later constructing feasible projects for the reclamation by irrigation of arid and semi-arid lands. He is also charged with the duty of maintaining and operating these projects until the charges for water for the major portions of the land have been repaid, when the burden of operation and maintenance passes to the owners of the lands.

The Reclamation Act is very general in character and imposes large discretion upon the secretary. In order to carry it out, he has organized what is known as the Reclamation Service, which is practically a bureau of the Department of the Interior. This service consists of men selected through competitive civil service examinations, based largely on practical experience, and who have made a record for efficiency each in his specialty. This organization has been in existence for a little over six years, and during that time, under the direction of the Secretary of the Interior, has made plans for many important works, and has erected a number of these, the estimated expenditures being in round numbers fifty millions of dollars. Already nearly a million acres have been placed under irrigation, and a third of this has been actually watered. Large dams and other structures for conserving water have been built, so that additional areas can be brought under irrigation by completing other units.

The building of large structures for water conservation and for the reclamation of land is not, however, the ultimate object. These works in themselves are notable, but their importance to the nation comes from the fact that they make possible opportunities for the creation of small farms and building of homes for an independent citizenship. The question of prime interest to the general public is not so much that of how far these works may be extended, but what may be accomplished through them by the reclamation of lands otherwise valueless.

Throughout an extent of land, equalling fully two-fifths of the area of the entire United States, there is not enough rain, at least

in the crop season, for the needs of useful plants, and for success in agriculture there must be a constant supply of water, artificially controlled and brought to the fields. Between the two extremes—on the east a humid region with occasional summer droughts, and on the west a truly arid region where all plants need irrigation—lies a broad and somewhat debatable belt of land known as sub-humid or semi-arid region, within which irrigation is valuable, but where the need is not so pressing as to render the practice always successful. In the arid region there is no question as to what may be accomplished by reclamation. The extent of the accomplishments are bounded simply by available water supply, and the acreage which will be reclaimed in the future can be given accurately when facts become available as to the quantity of water which may be stored or pumped to the dry lands.

In the semi-arid region, however, the question is a little more complicated, as the extent to which irrigation may be extended in the future is modified by the possibilities of finding useful drought-resisting plants which can be cultivated on the rich soil where the water supply is now somewhat deficient. Our present knowledge of the water supply available for use in both the arid and semi-arid regions is not sufficient to state accurately the limits which are set by nature to the irrigable areas.

There is more good land in the arid region than there is water for it. If all the run-off waters of this region could be conserved and employed in irrigation, the total reclaimed area might, perhaps, be brought to nearly 60,000,000 acres. This is uncertain, however, as our data on run-off are confined to a portion only of the streams, and are incomplete even for these; furthermore, such an estimate involves assumptions regarding the duty of water that may introduce large errors; that is to say, we do not know in all cases how much land can be irrigated by a given amount of water. It is known, moreover, that large portions of the water of the arid region can not be used in irrigation, as no irrigable land exists upon which it can be brought at feasible cost.

In general it may be stated that the value of irrigated land is increasing while improvements in machinery are tending to decrease costs of construction of reclamation works, so that it is impossible to draw an exact line between the probable and improbable schemes, even if we had full knowledge regarding present costs. This would

require elaborate surveys, which have not been made. For these reasons any present estimate of the total irrigable area is necessarily little better than a guess. With present data, the closest statement is probably under 60,000,000 acres and between 40,000,000 and 50,000,000 acres, including the lands now under ditch.

The subjects of irrigation, forestry, power, domestic water supply, drainage and navigation are all closely interrelated and should be thoroughly studied together, not only in the arid, but in the humid regions. No one of these questions can be properly treated without full regard to all the others. Proper study of these comprehensive subjects should include more extended observations of rainfall and evaporation, especially in high altitudes, and of the annual flow of all streams. Topographic maps should be made showing the areas of drainage basin, the location of reservoir sites, and their relation in altitude and location to irrigable lands and to power and navigation resources. Such maps are the basic information most urgently needed for all land classification, and without them no wise policy can be adopted.

Both state and national laws are incomplete in permitting and encouraging settlement on lands which should be reserved for reservoir sites. Thorough surveys should be made and all feasible reservoir sites, when discovered, should be reserved for development.

The present laws in some states tend to promote irrigation, but in others they do not. The most primitive form of the regulation of water in irrigation is best exemplified by the present laws of the State of California. These declare the principles of priority and beneficial use, and provide that claims to the use of water shall be recorded in the form of a notice of appropriation, and shall be perfected by application to a beneficial use. At the same time they try to recognize as concurrent on the same stream, rights derived by prior appropriation and rights depending on riparian ownership. The riparian doctrine of water rights should be definitely and permanently abrogated in all arid regions. This has been done in some states by constitutional provision and in some by judicial decision. In all the states of the arid region where the riparian doctrine is recognized material modifications in the old common-law doctrine have been made and put into effect.

The progress of reclamation in many of the western states will

be extremely slow until better laws are passed covering some of the important points above indicated. The uncertainties concerning rights to water are so great that no one would be justified in incurring large expenditures without better safeguards. The conditions are very much as though we had no system for describing or recording land titles, and every man could claim all of the land he desired, leaving it to the courts from time to time to determine how much land was actually used by each man. The litigation which results from this indefinite condition is endless, since it frequently determines only the relative rights of two men and leaves out of account the rights of third parties or of the public. The confusion which now exists with reference to water titles is indescribable, excepting in those states where a definite system of measuring and recording the amount of water has been adopted.

With larger knowledge of the subject, with better laws, and with skill in handling water, it will be possible to reclaim the vast areas above mentioned, and to make opportunities for at least a million farms and homes, supporting directly five millions of people, and indirectly enabling an equal or greater number of people to be supported through the transportation and manufacturing business which grows up incidental to farming. The yield per acre of the reclaimed land is so great that when completely utilized it is possible that it will support, directly or indirectly, a population averaging very nearly one to the acre. This means communities nearly independent of the effect of fluctuating trade conditions, or of wet or dry weather, and a people more nearly self-supporting than any other similar number in the country. It means a citizenship attached to the soil and with the incentives to the highest patriotism.

THE LEGAL PROBLEMS OF RECLAMATION OF LANDS BY MEANS OF IRRIGATION

BY MORRIS BIEN,
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Although irrigation, as applied to the individual dealing with his land, is new to the Anglo-Saxon race, it must have been an early form of agriculture. The earliest traces of civilization are in the arid region of Asia, where men found that, except in a few favored localities, it was impossible to raise crops without applying water to the land. Accordingly, we find in Asia evidences of irrigation work done at an early period and involving great labor and some degree of engineering skill. In Egypt, likewise, there are indications of massive work requiring an enormous amount of labor and the transportation of great quantities of material for long distances. The earliest records contain references to irrigation and the laws of the remotest times of which we have knowledge allude to irrigation matters and regulate various features of irrigation practice.

The Anglo-Saxon race first encountered the subject of irrigation from an administrative standpoint in India; and the enormous development of irrigation works in recent years in that country is a monument to the energy of the British nation. So also in Egypt the British Government has taken hold of the irrigation question and has added wonderfully to the possibilities of development in that country.

In Europe irrigation was introduced in the early stages of civilization, and when the discoverers reached the continent of America they found evidences that irrigation had been practiced for many generations. In the southwestern part of the United States there are ruins of ancient irrigation works and some of their sites are being used for the modern construction carried on under the auspices of the United States Reclamation Service.

The gold miners of California were early confronted with the problem of determining the right to the use of water, because the gold mining involved the large use of streams of water under heavy pressure to break down the hillsides and carry the dirt away into

sluices where the particles of gold were deposited and afterwards collected. The right to the use of the water became an important matter and the expense of carrying the water from the streams to the place of use soon made it necessary for the mining population to adopt a set of rules to regulate the rights of those who used the water. These rules were early embodied in the laws of the state of California, and soon became the subject of litigation in the courts.

Not many years passed before the regulation of water appeared in Federal legislation. Gradually, with the development of the West, the water question became of importance in each section of the country. Usually the mining interests were the main ones to be protected, but before long the interests of agriculture became of sufficient importance to require some form of legislation in order to provide for the use of water upon lands for raising crops.

The legislation of California, although not well adapted to modern needs, being the earliest, naturally was the model for the other states and territories. The first great departure from the form of the California statutes is found in the legislation of Colorado. This system was for many years considered to solve the problem, but with the large development of rights and with the complexity introduced by the use of water to such a great extent as to leave but little or no excess, the difficulties to be overcome were increased, and we find in the legislation of the state of Wyoming, adopted in the year 1880, a development of legislation towards the form now regarded as the best practice.

THE LEGAL PROBLEMS INVOLVED

Land Problem

The legal questions arising in connection with irrigation involve problems both of land and of water. The application of water to land for the raising of crops soon developed the need for more care in agriculture and soil cultivation. The cost of securing the water and putting it upon the land makes it evident that the water must be used effectively in order to secure profit from the great expenditures involved. The realization of this idea encouraged the more intensive forms of cultivation. With intensive cultivation it soon becomes manifest that a small tract of land is sufficient for the sup-

port of a family, and that the cultivation of large areas under one ownership by irrigation is a form of monopoly not in the public interest and not to be tolerated any longer than is absolutely necessary. In irrigated countries experience shows that the large irrigated farm is difficult to handle and that the interest of the public is greatly promoted by small holdings sufficient for the support of single families.

Fortunately this situation has not required legislation in order to secure a proper distribution of the lands among those who can themselves use and get the benefit of them. The normal conditions are such that it is usually impracticable to practice irrigation on a large scale on a single farm. The problems of labor on a great farm in the more sparsely settled parts of the country are insuperable. In order to handle an irrigated crop a large amount of labor is required, especially in the case of products of great value, such as berries, small fruits, orchard fruits, hops, etc.

The subdivision of holdings in irrigated countries is a problem which seems to settle itself without the intervention of law and without requiring intervention on the part of the people. Statistics have been gathered in a number of cases in order to show the effect of natural processes upon the subdivision of irrigated lands into small holdings. In a small irrigation community in the vicinity of Oakley, Idaho, an investigation made in 1904 showed that in a tract of about 8500 acres the average size of the irrigated farm had decreased from 141.5 acres to 60.4 acres in a period of fourteen years.

Water Problem

The problem of the water supply is one that has confronted humanity from the earliest times. The difficulty is to guard against monopoly. The Anglo-Saxon carried with him to the arid West the riparian doctrine of the English common law as brought to the eastern part of our country from England. Riparian rights as understood under the old common law were that each individual who owned land along a stream was entitled to have that stream pass by his land without impairment in quality or quantity on account of any use by those living above. Manifestly it was impossible to maintain this principle in a country where the artificial application of water to land was necessary in order to raise crops. It became

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necessary both to adopt a rule that the right to water for irrigation should depend upon actual use, and to modify the common law so as to protect the persons who first used water for irrigation purposes as against those who might desire to take water from the same source of supply at a later date; in other words, to protect the prior appropriator of the water against the subsequent appropriator.

The forms of legislation which arose from the earlier practice, and which were adopted because most suitable, provided that notice of a man's claim should be given to all parties interested by posting some evidence of it at the point of diversion from the stream. The legislation first adopted in California provided that the right to the use of water should be evidenced by a notice of appropriation posted at the place of diversion from the stream and that a copy of this notice should be filed in the county records within sixty days. It was natural that the amount of water claimed should be as large as possible, and the practice for many years was to limit the amount of water claimed only by the imagination of the person filing the notice. This continues to be the rule in those few states where this ancient plan remains in force.

In many cases the notices filed, appropriate many times the maximum flow of streams even in flood stages. In fact, many judicial decisions can be found among the earlier cases, and even within recent times, in which the court has solemnly decreed to each of several individuals a right to take from a stream an amount of water far in excess of that which the stream ever carried, and adjudging to one or more of the parties the right to take from the stream more water than could possibly flow in the stream.

Beneficial Use

To meet the tendency to monopolize the water supply the laws of the states and the decisions of the courts early recognized the fact that the right to the use of water must depend upon beneficial use. Consequently there is a series of laws and decisions attempting to establish this basis; and many cases might be cited of attempts to control the water supply for future use by some form of seeming compliance with the law.

One case is found in the decisions of the California courts where a man diverted water from a stream and used a part of the water for the irrigation of his lands and for the raising of crops. He ap-

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preciated the value of the water and accordingly took steps to secure for future use the water he might need for the rest of his land, turning the excess water supply on land which he did not then wish to cultivate. His idea was to lay a basis for proving that he had turned the water upon this land and thus claim a priority of use for this surplus water. The court held, however, that this was not a beneficial use and that a subsequent appropriator of water from the same stream who had put the water to use for the raising of crops had a better right to this excess water, and, therefore, his efforts to preserve a right to this water without actual beneficial use very properly resulted in failure. The records of the courts are full of efforts made by parties who posted or filed notices of appropriation and who, in order to preserve them, carried on a perfunctory compliance with the law. When the test finally came, these men strained every effort to preserve the right which they claimed under this seeming compliance with the law.

The law requires that the work of construction shall be commenced promptly after the claim to water is initiated and shall be carried diligently to completion. It is a common thing to find that after the notice of claim has been posted the claimant will do a small amount of work at or near the point of diversion and perhaps keep one or two men at work at odd times for several months or even years, hoping in this way to be able to substantiate a claim of prompt beginning of construction and diligent prosecution to completion. He hopes at some future time, when trying to defend his rights against some appropriator of a subsequent date to be able to show that he had complied with the law although for a long period he had practically accomplished nothing toward putting the water to a beneficial use.

The legislatures and the courts have recognized this feature of the problem and it has practically always been the settled doctrine in the irrigation legislation of this country that no one could obtain an ownership in the water itself, but that at most he could acquire a right to the use of the water and that the control and regulation of this right must be in the public. Accordingly we find that the legislatures and the courts in all their dealings with these problems have undertaken to see that the water shall be so used as to produce the greatest benefit for the entire community.

The problem has been attacked in many different ways. The

laws and the decisions of the courts have developed the principle announced in the reclamation act, enacted by Congress and approved June 17, 1902, that "beneficial use shall be the basis, the measure and the limit of the right." It has been pointed out that this statement is not exactly accurate, because as every one must admit, the basis of the right to the use of water is the ownership or occupancy of land, while the measure of the right and its limit must be beneficial use. In some state legislation there is an attempt to fix an absolute limit to the right to water for beneficial use on land by stating the amount which shall be the limit granted for an acre of land. This limit, of course, is stated sufficiently large to include all forms of agriculture and must necessarily allow too great an amount for some crops and is thus rather a rough approximation to the end to be desired. However, it is a rule which is of value to the courts and at the same time permits a general regulation of the matter by fixing a limit beyond which no one can claim a right.

Where the right to the use of water depends upon beneficial use no water can be beneficially used if it is so applied to lands as to be wasted. Accordingly, some states have passed laws to prevent the wasteful use of water and the courts, as a matter of law and to protect the rights of the public, have decided that a man could not be permitted to waste water and that his rights must be diminished to the extent of any wasteful use which may be proven.

Adjudication of Water Rights

Another problem which has arisen from the use of water is that of determining the right of each individual user. The theory of our English common law is that when a man feels himself aggrieved by the action of another he takes the proper steps to have him brought into court, and upon the evidence adduced by each the court decides their respective rights. This proceeding, however, becomes practically impossible for the determination of water rights.

It is manifest that if A and B are in controversy about their rights and the court decides that A has a better right to a particular amount of water for a particular area of land because of his priority of beneficial use over B, we still find ourselves unable to determine what may be the right of C who may, in fact, have a right superior to both. That a court should undertake to determine the rights of A and B and to apportion the waters of a stream between them, dis-

regarding a fact known to both litigants, and perhaps also to the court, that C has a better right to the use of the waters of the stream than either is a situation which, one would think, could not possibly arise among rational beings. Yet we find that this condition existed for many years in many jurisdictions in the West, and does in fact continue to exist in some.

Manifestly, there is only one way in which the rights of several users of water from the same stream can be determined, and that is by bringing them all into court and having them all show their respective claims to the use of water, whereupon their rights may be determined with some knowledge of the amount of water claimed and the amount available for division among them. In some jurisdictions the courts have undertaken to bring all parties involved in a water suit into the court at the same time, but in most cases it has remained for the legislature to take up the question and to provide means for bringing together all parties interested in the use of the waters from some particular stream or stream system. Such a plan must involve many complications, and special means must be adopted to reduce to a minimum the amount of testimony and the expenditures which must devolve upon each individual who is brought into court in order to protect his rights as against all other appropriators on the stream.

The customary method in litigation would be for each person to bring his own witnesses as to all the facts on which he bases his claim; but it would involve interminable duplication and great expense if each claimant introduced evidence to show the basis of his own claim, his priority to each other claimant, and the amount of water which he claimed to be available for all. Especially would this be the case if the representative of each claimant were permitted to cross-examine the witnesses for every other claimant. Therefore, in most of the states the office of state engineer has been established, whose duties require him to gather all the physical data as to water supply, areas of land irrigated, dates of claims, etc., so that these matters of expert measurement or of record may be brought together by a single agency, and there may be an avoidance of the duplication of effort and expense which would be involved if each individual were to bring the same data to the attention of the court.

When these data have been gathered by the state engineer, he

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is required in some jurisdictions to digest them and deduce from the facts so gathered the respective rights of the parties, and in fact to make a preliminary determination of the rights of all parties concerned. The parties whose interests are involved are then permitted to appeal from the decisions of the state engineer to the court so that the same question may be tried by the judicial tribunal and determined in the usual way by the court. Where the amount of water available is sufficient for the needs of all parties concerned, there would usually be very little ground for objection to the decision of the state engineer; and in the sections where there is no scarcity of water, this method of adjudication works satisfactorily.

In order to secure the full benefit of these adjudications whether by state engineer, or by the courts, steps must be taken to regulate and control further appropriations of water. The legislature, therefore, provides that no one may acquire a right to the use of water from a stream except by making application to the state engineer, who must examine the petition and determine whether there is unappropriated water available for the use of the applicant. If he finds that there is no unappropriated water available, he rejects the application and the applicant is permitted to appeal to the court if he desires, and have the question judicially determined. Such legislation as this will prevent the unfortunate condition which has arisen in many states where the claims of record are greatly in excess of the actual water available and where the mere fact that a claim to the use of water is of record has been used to float enterprises causing great money loss to innocent investors because the rights claimed do not in fact exist.

Water Appurtenant to Land

The rule that the right to the use of water depends upon beneficial use has necessarily evolved another principle—namely, that the right to the use of water once established for a particular tract of land must remain attached to it; or, to use the legal term, the right to the use of the water is appurtenant to that particular tract.

It would be immaterial to B if A, who has a right superior to his, should use his water upon one particular tract, or upon another, unless A's change from one tract to another should affect the amount of water which B could obtain under his junior right. B's right in such a case would be affected in several different ways: A change

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in the use of the water from one point to another might involve also the use of a larger quantity of water in order to secure the proper cultivation of the land. This naturally arises from the different characteristics of different soils. The most important need for making the water appurtenant to a particular tract of land arises from the fact that the use of water upon lands usually results in the return to the stream of a large amount of the water so used.

In applying water to lands for the cultivation of crops we may regard the body of the water as disposed of in four different ways: (1) a considerable amount evaporates directly from the earth into the air; (2) of the portion which percolates into the ground a certain amount is taken up by the vegetation and incorporated into the plant life; (3) a certain amount passes away, percolating through the soil and finally reaching some water course; (4) the remainder sinks into the soil for an indefinite distance, and we are not able to state what becomes of it.

In nearly all cases a large proportion of the water returns to the water course. This seepage or return water naturally reinforces the amount of water available for the appropriators lower down upon the stream, and to deprive the lower appropriator of this return water may mean to him the loss of all or a great part of the water to which he is entitled. A change in the place of use could materially affect the amount of return water available for the appropriators lower down upon the stream, who may be either prior or subsequent to the other in right.

There are other ways in which a change in the place of use would affect the water supply in the stream. It might cause the water to return to the stream at a different season than it would return from the other tract of land, due to the different characteristics of the soil as to permeability.

The doctrine of appurtenance must be maintained to secure, as nearly as possible, a continuance of the condition upon which the appropriators from the stream lower down depend for the fulfillment of their own rights. In other words, the stream is to be maintained as nearly as possible in the condition in which each successive appropriator found it at the time of initiating his right.

Doctrine of Appropriation and Riparian Rights

The doctrine of appropriation of water for beneficial use and the doctrine of riparian rights are largely, if not entirely, antagonistic. Nevertheless, the conservatism of legislatures and courts has caused California and other states to try to maintain the doctrine of appropriation and of riparian rights in the same vicinity and in fact upon the same stream. This has happened because in California and Washington, and also in some of the states along the eastern edge of the arid region, a considerable area is sufficiently humid not to require irrigation for the practical production of crops. The riparian doctrine being older and being the one recognized by the common law from which the statute law of the country has been developed, was recognized as superior to the needs developed in the arid section of the states. In the beginning, the arid section was of small importance; its needs have impressed themselves upon the legislatures and the courts only as the result of an increase in population and an increase in importance arising from gradual development.

The problem must, of course, be met in each state, and must be worked out in its own way. The experience of the state of Nevada is perhaps interesting, as showing the manner in which these matters are often worked out. In 1866 the Supreme Court of the State of California decided the well-known case of *Lux vs. Haggin*, in which the court recognized the rights of the riparian owner as superior to the rights of an appropriator, based upon subsequent ownership of land though earlier in use of water. The Supreme Court of the State of Nevada, in 1872, in the case of *Vansickle vs. Haines* adopted the doctrine laid down in this case, and it was the law of the state for some thirteen years. Finally, however, the conflict was presented to the court in a different form, in the case of *Jones vs. Adams*, decided in 1885, and a careful review was given to the entire question. As a result the Supreme Court of the State of Nevada decided that the doctrine based upon riparian rights was not in any manner applicable in that state; that it was entirely unsuited to the conditions existing in that state, and therefore never was and never could be the law for that jurisdiction. The court accordingly reversed itself and overruled the former decision.

In some of the other states, where large areas of the states are humid or semi-arid and where the importance of irrigation has not been felt until recent years, the courts have attempted to apply the doctrine of riparian ownership to the arid sections of the states, involving necessarily a number of important modifications in the original conceptions arising from that principle. These were carried along by the courts from year to year until finally the importance of the irrigation interests demanded a careful study of the situation and an attempt to apply the law in such a manner as to foster the development of irrigation. The riparian doctrine was then thoroughly scrutinized and its inapplicability to the conditions of the state is so fully recognized that the courts find it necessary to get away from the former doctrine and to adopt the principles demanded by the development of the arid section of the state.

This progress in legal interpretation must, necessarily, be based upon the principle that no system of law shall be applied in any country where the results are such as to prohibit or interfere with the development of civilization. We, therefore, find the State Supreme Court of Oregon, in a recent case known as *Hough vs. Porter*, deciding that the riparian doctrine of water rights is not applicable in that state, for in a large part of its area water is necessary for the proper cultivation of agricultural crops.

In some of the other states, where the doctrine of riparian rights is still recognized as effective in sections where irrigation is necessary for the production of crops, there has been greater or less modification in the principles applied. There is no doubt that ultimately, as the irrigation interests assume greater importance, the courts must necessarily recognize the fact that the law must not stand in the way of necessities of the community, and that the court must find one means or another so to modify their rulings as to foster the natural line of development upon which the community must depend.

Water for Electric Power

The reclamation act was not drawn by any one individual, but was the result of the labors of many persons both in and out of Congress who were familiar with the conditions of the arid region. The act, therefore, embodies the two general principles to which reference has been made, viz., that beneficial use is the basis, meas-

ure and limit of the right to the use of water, and that the right to the use of water is appurtenant to the land irrigated thereby. The act applies to the use of all methods of applying water to lands, provides for raising water to high levels by means of pumping, and also incidentally recognizes the use of electric power for such purpose.

In connection with many irrigation projects, the opportunity to develop electric power by means of water has made it practicable to extend greatly the area which can be irrigated. On the other hand, the diversion of the water from the stream, or the storage of water, has created opportunities to develop electric power not needed for irrigation purposes. Whenever it is possible to develop electric power in connection with, but not needed for, the irrigation of land, this power should be used for commercial purposes. Such surplus power will be of great value in aiding the development of the community. Aside from its availability for domestic and agricultural operations on the farm itself, it will be useful in connection with factories depending directly upon agriculture, such as beet-sugar factories and canneries. In many communities there may be opportunities for miscellaneous manufactures which will be established wherever a surplus power opportunity is available.

Electric power furnishes an opportunity for the cheap transportation of passengers and freight, and is a great factor in bringing the individual farmers in closer contact with each other, with other farming communities and with the cities. It is thus a very important element in the improvement of the conditions of human life, both in the city and in the country.

This use of the water for the development of electric power in connection with an irrigation system should not, however, be allowed for commercial purposes independent of irrigation. It is, therefore, essential that the use of water for developing electric power must be under the control of the same agency that has supervision over the irrigation enterprise. This gives rise to another problem in connection with reclamation, and that is the control of the relations between the hydraulic development of electric power for commercial purposes and the utilization of the water supply for irrigation.

The necessities of electrical power for commercial purposes are such that it can be used to advantage only in those cases where a certain amount of power can be depended upon throughout the

entire year. This, of course, is not always possible in connection with the use of water for irrigation; because the water supply for irrigation, which is drawn upon only during the growing season of the year, must be stored and not allowed to pass down the stream in the non-irrigation season. The state laws and the decisions of the courts should recognize the relative necessities of the community for irrigation and for power, and the laws should permit of such adjustments of the use of water for the two purposes as will best serve the needs of the community.

In this connection it may be stated as a general proposition that the power possibilities when existing below the points of diversion for irrigation purposes are likely to interfere seriously with the use of the water for irrigation, because it is necessary to let the water supply pass down the stream to be utilized by the power plant instead of diverting this water for irrigation purposes. On the other hand, when the water power is developed at a point above the place where it is used for irrigation, it will often be an aid in the irrigation use of water, as the needs for power require a regulated stream, and thus the low water supply is increased by the water held over from the high-water periods, which are usually in the non-irrigation season.

The development of hydro-electric power presents an excellent opportunity for monopoly, and much has been accomplished in this direction by some large corporations that have taken advantage of the lack of regulation to secure enormously valuable rights at little or no expense. The State of Oregon has, by recent statute, taken the lead in the regulation of the use of water for power purposes by providing that the right shall be subject to a nominal charge, that it shall run only forty years and be subject to renewal under such conditions as the legislature may prescribe.

Much yet remains to be done to solve the problems connected with the reclamation of lands and the use of water for irrigation and power, but the general attitude of the communities of the arid region promises steady progress toward a wise solution of these complex questions.

PART FOUR

*Minerals: Their Waste and
Preservation*

OUR MINERAL RESOURCES

BY HON. GEORGE OTIS SMITH,

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PRODUCTION AND WASTE OF MINERAL RESOURCES AND
THEIR BEARING ON CONSERVATION

BY J. A. HOLMES,

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TIONAL CONSERVATION COMMISSION, WASHINGTON, D. C.

PRESERVATION OF THE PHOSPHATES AND THE CONSERVA-
TION OF THE SOIL

BY CHARLES RICHARD VAN HISE,

PRESIDENT OF THE UNIVERSITY OF WISCONSIN, MADISON, WIS.

OUR MINERAL RESOURCES

BY HON. GEORGE OTIS SMITH,
Director, United States Geological Survey, Washington, D. C.

Abundance, variety and wide distribution characterize our country's mineral heritage. Large as are the stores of essential minerals, they, however, are not illimitable, and widespread as is their occurrence, nevertheless the most valuable minerals are somewhat unevenly distributed. The recognition of these limiting factors prompts the thorough study of our mineral wealth quantitatively and geographically if we would comprehend the true basis of the nation's industrial life.

An inventory of the mineral resources of the nation recently made public by the National Conservation Commission owes its chief value to the fact that the data used had been in preparation for more than a score of years. The appreciation by Congress of the importance to the nation of its mineral resources led to the establishment of the United States Geological Survey thirty years ago, and this bureau, in its explorations and investigations, had accumulated quantitative data that became readily available at the time of popular awakening to the needs of national conservation.

The distribution of mineral wealth depends on geologic factors, and different geologic provinces are characterized by deposits of different minerals. Herein lies the practical value of much of purely geologic study. Thus, an important part of the Survey's work through these years has been to keep the country informed as to the occurrence of economic minerals.

The facts as to the distribution of mineral wealth are of practical value because of the vital connection between such geographic distribution and the development of manufactures and commerce. Precedence is given to manufactures because this industry rather than commerce should first feel the creative influence of mineral wealth. The metallurgical, clay-working, structural and chemical industries constitute the web and woof of industrial prosperity, and to a large degree it is only the disregard of the principles of political economy that permits the export of raw material beyond the bound-

aries of state or nation. Free trade among the states of this Union has developed great interstate industries and internal commerce on a grand scale, but this phenomenal national development should not blind the people of the individual states to the advantages of local utilization of their own mineral resources. An illustration of this local utilization is seen in the new industrial South, which is possible because the South has always possessed mineral wealth.

The ten most important mineral products in the United States, in the order of value of annual output, are coal, iron, copper, clay products, petroleum, gold, stone, cement, natural gas and lead. For certain of these minerals the inventory by the Survey presents estimates of the supply with which the nation's needs are to be met. For others, especially clay products and cement, the question of the supply of raw material from which they are produced is of little moment compared with that of the availability of the fuels necessary for the processes of manufacture.

Of nearly equal importance with the factor of abundance of these mineral resources is that of distribution. In the first place, the widespread distribution of the raw material makes possible an industrial nation in which every state and territory has some share in the mineral production. Only three states had a mineral output last year valued at less than a million dollars, and twelve states had a production valued at over fifty million dollars each. Again, no state or section appears to have a monopoly of the mineral industry. While "progressive Pennsylvania," with its total mineral product nearly one-third that of the whole country, leads in coal, cement, stone and natural gas by large margins, another state, Minnesota, leads in iron ore; another, Arizona in copper; another, Ohio in clay products; Oklahoma in petroleum; Colorado in both gold and silver, and Missouri in both lead and zinc. Furthermore, the centers of production are ever shifting. For instance, in 1900 the primacy in quantity of petroleum produced passed from Ohio to California, thence in 1907 to Oklahoma, and within a year, in copper production, Montana had given place to Arizona, in lead Idaho to Missouri, and in silver Montana to Colorado. It is evident that we cannot prophesy the future progress of any industry unless we can determine the centers of the mineral reserves, for it will be toward these centers that industry will trend.

Our country's pre-eminence in supply of mineral fuels consti-

tutes its chief national asset. Coal occurs in all but fourteen states, and the far West and the South rival the East in their stores of petroleum and natural gas. A total area of nearly half a million square miles is underlain by coal beds. This is over sixteen per cent. of the area of the United States, not including Alaska, which has her own coal deposits. Of this area the anthracite coal fields of Pennsylvania, the product of which is of such importance in the eastern markets, constitute less than one-tenth of one per cent.

The tonnage estimates by Mr. M. R. Campbell, the geologist in charge of the Geological Survey field work in mineral fuels, indicate that the country's coal supply is represented by over three million million (3,157,243,000,000) tons. Of this amount nearly one-half (1,474,018,000,000 tons) is accessible and available for mining under present conditions; a third, or approximately one million million (1,153,225,000,000) tons, is accessible only with difficulty and thus represents a reserve that may become available whenever the increased demand warrants the more expensive mining operations necessary for its production. The remaining 530,000,000,000 tons include lower grade sub-bituminous and lignite coals, which, though easily accessible, are not at present in demand.

The tables prepared by Mr. Campbell show that of the coal deposits workable under present conditions, eighty-five per cent. is the higher grade coal, anthracite and bituminous, the remainder being sub-bituminous and lignite. Of the total supply the anthracite and bituminous coal also represent the largest areas, or 250,000 square miles, the sub-bituminous 97,000 square miles and lignite 148,000 square miles. These areas are distributed over six provinces, which rank in order of area as follows: Interior, Northern Great Plains, Rocky Mountain, Gulf, Eastern and Pacific Coast. In order of tonnage, however, the Eastern province, with its fourteen per cent. of area, ranks first, containing over thirty per cent. of the accessible coal, and indeed forty-three per cent. of the available supply, followed by the Northern Great Plains and the Rocky Mountain provinces, then by the Interior province, which if only the higher grades of coal were considered would stand second, the coal in the Northern Great Plains province being largely lignite and that in the Rocky Mountain province to a considerable extent sub-bituminous coal.

If in the consideration of the geographic distribution of the na-

tion's coal reserves a proper correction is applied to the estimated tonnage on account of the difference in heating value of the several varieties of coal, the geographical center of the coal deposits of the United States is at a point in southeastern Nebraska, in latitude forty degrees, twenty-five minutes, longitude ninety-six degrees, fifty-nine minutes.

The world's coal reserve cannot be even approximately estimated. Of the other countries which contribute to the world's production of coal few are believed to possess deposits at all comparable with those of this country. Since the days of von Richt-hofen's estimate of the coal resources of North China that country has been looked upon as possessing a reserve upon which other nations may draw when the coal supply of Europe and America shall run low. Mr. Bailey Willis' recent estimate on the coal of North China puts the figures at 605 billion tons, with the qualifying statement that this may be a hundred billion tons too much or too little. Such a reserve is fairly comparable with the total amount of coal in the Appalachian coal fields as estimated by Mr. Campbell. In short, the coal fields of Southern, Western and Northern China are sufficient only for the future needs of the great civilization which the Chinese will surely develop.

This glance at the world's reserves of coal shows plainly not only that the United States leads all other countries in production, our annual output being nearly forty per cent. of the total, but also that it possesses the greatest reserves. Yet in respect to no mineral is there greater need to emphasize the folly of exporting the raw material. Let us keep our coal at home and with it manufacture whatever the world needs.

Petroleum and natural gas must be considered together with regard to their distribution. The areas in which they are found are scattered over twenty-two states and aggregate nearly 9000 square miles, in six great petroleum fields. Eighteen states produced petroleum last year and nineteen states produced natural gas. The six known petroleum fields rank as follows in order of reserve: California, Appalachian, Lima-Indiana, Mid-Continent, Illinois and Gulf. Dr. David T. Day, of the United States Geological Survey, estimated the total probable yield of these and minor fields at fifteen to twenty-five billion barrels.

An estimate of the country's reserve of natural gas is much

more difficult. Dr. Day has compiled all the data relating to pressure in the various fields, from which he concludes that the duration of high pressure in the known fields is very short. On the other hand, the yield from low pressure wells is persistent and he therefore estimates the probable duration of the supply of natural gas in these words:

"This industrial enterprise of pumping natural gas in order to utilize the entire supply is the most hopeful element in the outlook for a continued supply. It is this feature which made possible the use of a larger quantity of natural gas last year than the year before. The outlook is that natural gas will be utilized for as long a period as has already elapsed since the industry began, with the greater part to be furnished by the Mid-Continent field."

The iron ore supplies of the United States rank second to the coal reserves in national importance. Although iron is one of the most abundant elements in nature, workable deposits of iron ores are not so widely distributed as might be expected. Iron ore is at present produced in only twenty-nine of the forty-eight states and territories, and more than two-thirds of the production comes from two states, Minnesota and Michigan. Dr. C. W. Hayes, the chief geologist of the Survey, in making an inventory of the iron ore supplies, has called attention to the fact that an understanding of the chemical and geologic classification of the iron ores is essential to the appreciation of the limitations and uncertainties of any estimate. In the case of the bedded ores, an approximation can be made comparable with the estimates of coal beds, but on the other hand, in the case of concentration and replacement deposits, the degree of uncertainty in any estimates is much greater.

Dr. Hayes' tonnage estimate of the iron ore deposits available for reduction under present mining and metallurgical conditions is nearly five billion (4,784,930,000) long tons, of which nearly three-quarters is credited to the Lake Superior hematite ores. The Clinton and other ores of the Southeastern district take second rank, the brown ores of the Mississippi Valley third, and the magnetite and Clinton ores of the Northeastern district fourth. Of lower grade ores, which are considered not available under present conditions, it is estimated that there are in the country nearly seventy-five billion tons, of which the largest part again consists of the hematite ores of the Lake Superior region. The relative import-

ance of our country's supplies of iron ore is indicated by comparison with the foreign supplies of iron ore believed to be sufficiently high grade and accessible to render them available for the iron industry of the United States. The total estimate for such deposits in Canada, Newfoundland, Mexico and Cuba is only one and one-half billion long tons, or considerably less than one-half of the available supply in the Lake Superior district alone.

The resources of the United States in the precious metals, as well as in copper, lead and zinc, are much less easily estimated than the supplies of either coal or iron. Although deposits of the precious and base metals are widely but sporadically distributed, occurring in all of the western states and many of the eastern states, yet no large areas are underlain by extensive ore deposits of these metals.

On the basis of investigations by the geologists of the United States Geological Survey, Mr. Waldemar Lindgren states that "to give definite figures representing our metal supply is quite out of the question." In the case of silver, copper and zinc, the reserves are large enough to warrant the expectation that a moderate rate of increase in production can be maintained probably for twenty years or more. In the case of lead, a greatly increased production is regarded as improbable.

Mr. Lindgren believes that the reserves in gold in the United States are great, although only for placer gold is even a rough estimate possible. With continuance of present methods of working and present wages, the placers are estimated to contain one billion dollars of reclaimable gold.

The silver reserves cannot be considered apart from the ores of gold, lead and copper. Over two-thirds of the silver produced in the United States comes from lead and copper ores, and a large proportion of it might properly be regarded as a by-product. From this Mr. Lindgren regards it as "evident that the present supply of silver is assured as long as the mining of lead and copper ores as well as quartzose gold continues on the present scale."

Any attempt to estimate the country's mineral wealth must convince us of the vital importance of utilizing most efficiently these resources, which are so essential to the nation's welfare. In view of the rapidly increasing demand upon these supplies it also becomes imperative that strenuous effort should be made to discover new

sources of the mineral fuels and ores. Thus alone can optimism be justified. Only as geologic explorations and mining operations uncover new deposits and block out known reserves can the United States with the continuance of its industrial development avoid facing the sure exhaustion of the supply of certain important minerals within this century.

PRODUCTION AND WASTE OF MINERAL RESOURCES AND THEIR BEARING ON CONSERVATION

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The study of the problem of conservation with reference to mineral wealth is easily separable into two divisions, considering under one the mineral resources as they exist to-day, and under the other a study of the production, consumption and waste of these resources and the prevention of this waste. The former of these is discussed in another paper in this volume by the Director of the Geological Survey. In discussing the latter in the following pages but brief consideration can be given to each phase of the subject. The mineral products in the United States for the year 1907 exceeded \$2,000,000,000 in value. It is estimated that the waste in the mining and use of these materials is equivalent to more than one-fourth of this amount, exceeding \$1,500,000 per day.¹

The Larger Contributors to Our Mineral Wealth.—The following are a dozen of the largest individual contributions to this \$2,000,000,000 addition to the nation's wealth during 1907 in the form of crude mineral products, the values given being those at the mines or works:

Coal, 480,000,000 tons, with a value of	\$615,000,000
Iron ore, 52,000,000 long tons, valued at.....	132,000,000
Pig iron, 26,000,000 long tons, valued at.....	530,000,000
Copper, 869,000,000 pounds, valued at.....	174,000,000
Clay products, valued at.....	159,000,000
Petroleum, 166,000,000 barrels, valued at.....	120,000,000
Gold, 4,375,000 ounces, valued at.....	90,000,000
Stone, valued at.....	71,000,000
Cement, 52,000,000 barrels, valued at.....	56,000,000
Natural gas, valued at	53,000,000
Lead, 365,000 tons, valued at.....	38,700,000
Zinc, nearly 224,000 tons, valued at.....	26,400,000
Phosphate rock, 2,265,000 tons, valued at.....	10,650,000

¹The statistics of mineral production given in this paper are taken mainly from the reports of The Mineral Resources Division of the U. S. Geological Survey.

The total value of our non-metallic products during 1907 was more than \$1,166,000,000. Of this, the fuels (coal, petroleum and natural gas) approximated \$788,000,000; structural materials (clay products, stone, cement, lime, slate, etc.), nearly \$306,000,000; abrasive materials (grindstones, oil stones, garnet, quartz, feldspar, infusorial earth and tripoli, millstone, corundum and emery), about \$1,647,000; chemical materials (phosphate rock, salt, sulphur, gypsum, borax, pyrite, fluorspar, etc.), nearly \$30,760,000; pigments (zinc white, mineral paints, barytes, etc.), nearly \$9,762,000; and other miscellaneous mineral products (moulding sand, glass sands, mineral waters, asphalt, precious stones, talc, tungsten, feldspar, bauxite, mica, fullers' earth, etc.), about \$30,387,000. The total value of the metallic products (iron, copper, gold, lead, silver, zinc, aluminum, quicksilver, tin and platinum) for the same year was \$903,000,000. Of this total mineral production in the United States we exported during 1907 mineral products to the value of \$347,000,000. This was in part offset by the importation of mineral products to the value of \$225,000,000.

The value of mineral products consumed in the United States during 1907 was, therefore, \$2,191,000,000, or \$122,000,000 in excess of the production.

American Contributions to the World's Mineral Production.—

The value of mineral production in the United States as compared to that in other countries is indicated by the fact that during 1907 the United States produced 63 per cent. of the world's petroleum, nearly 55 per cent. of its copper, 52 per cent. of its phosphate rock, 46 per cent. of its steel, 43 per cent. of its cement, 40 per cent. of its iron ore, 40 per cent. of its coal supply, 33 per cent. of its lead, 30 per cent. of its silver, more than 27 per cent. of its zinc, and 22 per cent. of its gold.

*Rapid Growth of Our Mineral Production.—*There are few better illustrations of the rapid development of this country than the growth of this mineral production. Thus, in 1880, the value of the mineral products in the United States approximated \$365,000,000; in 1890, \$606,000,000; in 1900, \$1,107,000,000; in 1907, \$2,069,000,000. The total value of the mineral products for the ten years, 1880 to 1889, inclusive, was \$4,478,000,000; that for the ten years 1890 to 1899, inclusive, was approximately \$6,594,000,000; whereas that for the eight years from 1900 to 1907, inclusive, was \$12,025,-

000,000. If the mineral production for 1908 and 1909 approaches \$2,000,000,000 for each year we shall have for the thirty years, beginning with 1880, a total mineral production of approximately \$27,000,000,000.

The following table indicates by years the rapid increase in value of the crude mineral products for the United States:

1880.....\$364,928,298	1890.....\$606,476,380	1900.....\$1,107,031,392
1881..... 400,833,052	1891..... 605,385,029	1901..... 1,142,000,029
1882..... 451,901,159	1892..... 622,543,381	1902..... 1,323,102,717
1883..... 446,859,473	1893..... 543,693,967	1903..... 1,491,928,980
1884..... 406,110,405	1894..... 549,374,767	1904..... 1,363,072,345
1885..... 418,803,180	1895..... 640,771,528	1905..... 1,625,135,835
1886..... 434,137,994	1896..... 640,544,221	1906..... 1,904,007,034
1887..... 508,387,674	1897..... 646,992,582	1907..... 2,069,289,196
1888..... 524,624,536	1898..... 724,272,854	1908..... 2,000,000,000 ²
1889..... 531,392,513	1899..... 1,014,355,705	1909..... 2,000,000,000 ²
<hr/> \$4,487,978,284	<hr/> \$6,594,410,414	<hr/> \$16,025,567,528 ²

As indicated by the figures given above, the estimated value of mineral products for the current decade is nearly two and one-half times that for the preceding decade, and the coal production alone for 1907 exceeded in value the total mineral production for any year prior to 1892. Still more striking are the figures indicating our per capita value of the mineral products, which in 1880 were \$7.25; in 1890, \$9.68; in 1900, \$14.55, and in 1907, \$24.19.

Production, Waste and Duration of Fuel Resources.—Unlike the supply of water, which goes and comes perennially, or of farm crops, which annually succeed one another, or even of the forests, which may come in succession with longer intervening periods, the supplies of mineral resources are limited, and they can neither be increased nor reproduced. Our mineral fuels deserve special consideration in this connection for the further reason that their use involves their immediate and complete destruction; and the increase in the manufacture and use of other materials also increases the consumption of fuels for heat, light and power, and for metallurgical purposes. Considerations such as these warrant special attention being given to the fuel problem in any discussion of conservation.

²Estimated.

From the beginning of our records of coal mining in the United States, about 1814, to the close of 1907 there were mined nearly 7,000,000,000 tons of coal. During this time the waste in mining probably exceeded 3,500,000,000 tons. The average rate of increase in production from 1846 to the close of 1907 was 7.36 per cent. per annum. The rate of production, however, has been a slightly decreasing one. Taking this and other factors into consideration, the experts of the Geological Survey have estimated that if this growing rate of consumption continues, the easily accessible and available coal supplies, aggregating 1,400,000,000,000 tons, will be exhausted before the middle of the next century. As to whether or how long this increasing rate of production and consumption will continue there may be reasonable differences of opinion. The estimates are based on the experience and development of the nation during the past three-quarters of a century, including its tendency toward an increasing per capita consumption of fuel.³

However, the time of this exhaustion will be naturally postponed by virtue of the fact that long before exhaustion would be reached the increasing scarcity and the higher price of fuel would cause a lessening in its rate of consumption. Furthermore, the adoption of more efficient methods in connection with the mining and use of coal, and the larger use of water power and other possible substitutes for coal, may serve to diminish the present increasing rate of consumption and thereby extend the life of the supplies. On the other hand, manufacturing in this country will doubtless long continue to grow more rapidly than the population, and the tendency will be to increase the demand for coal.

The waste of coal, both in mining operations and in use, is far greater than it should be. From the beginning of our mining operations down to the present time the average loss in the mining of bituminous coal has probably exceeded 50 per cent. of the total production. During the last few years, however, both in the anthracite and high-grade bituminous coals, in a number of our Eastern coal fields the loss in mining has been reduced to smaller percentages. In portions of the central and Western coal regions the percentage of loss still exceeds 50 per cent.

The losses in the use of coal for different purposes cannot be estimated with accuracy, but that these losses are serious is indi-

³See also page 210.

cated by the fact that in the power plants of the country less than 10 per cent. of the heat value of the coal is converted into actual work, and lighting plants convert less than 1 per cent. of the heat value of the coal into electric light. Large amounts of gas from our blast furnaces are lost by being turned into the atmosphere. To a small but increasing extent, however, these gases are being transformed into power through the use of gas engines. In connection with the coking industry gases and other by-products to the value of more than \$55,000,000 were wasted in 1907.

Of petroleum the total production during the last half century has exceeded 1,800,000,000 barrels. The rapidly increasing rate at which this production has been obtained and a careful study of the existing known petroleum supplies indicate the probable exhaustion of these known supplies before the middle of the present century. It is probable, however, that the life of the petroleum industry will be largely extended through the discovery of other supplies, as well as through a more efficient use, and, therefore, a lessening in the rate of increase in the demand for existing petroleum products.

The loss or waste of petroleum is proportionately far less than that of most other mineral products. It is unfortunate, however, that so large a proportion of this material which is invaluable for illuminating and lubricating and other specific purposes should be so extensively used as fuel in locomotives, steamships and other power plants. The consumption of petroleum for fuel purposes during 1907 exceeded 35,000,000 barrels.

Concerning the production of natural gas existing records are incomplete. For the twenty years from 1888 to 1907, inclusive, the value of the natural gas recorded was a little more than \$493,000,000. The waste of this material has been enormous. The gas wasted has greatly exceeded that which has been used. More care is exercised now than was formerly the case to prevent the waste and provide for the efficient use of natural gas, but it is estimated that even at the present time the daily loss of gas is not less than 1,000,000,000 cubic feet, or equivalent to 143,000 barrels of petroleum, and in one field, the Caddo field of Louisiana, the daily loss of gas is now not less than 70,000,000 cubic feet, enough to light ten cities the size of Washington, and equivalent to a waste of 10,000 barrels of petroleum per day.

Production and Waste of Metallic Resources.—In a brief paper, a discussion of this character may be limited to iron and steel and a few major metals, such as copper, gold, silver, lead and zinc.

The production of iron ore in the United States has increased with a rapidity as striking as that in the case of coal. The production for ten years, from 1870 to 1879, inclusive, was more than 40,000,000 tons. For the ten years 1880 to 1889, inclusive, it was nearly 102,000,000 tons; from 1890 to 1899, inclusive, nearly 184,000,000 tons, and from 1900 to 1909,⁴ inclusive, more than 445,000,000 tons. This is an average increase by decades of more than 100 per cent. Even with the enormous supplies of iron ore known to be available for future use, at this increasing rate of consumption these supplies cannot be expected to meet the demands of the nation for an indefinite period. Indeed, it is probable that the supplies of high-grade iron ores will be exhausted and large inroads made on the supplies of lower grade ores before the end of the present century.

The fact that iron and steel, unlike our fuels, are not fully destroyed in use, but accumulate in a measure as one of our national assets, will doubtless in the course of a few generations reduce the present increasing per capita rate of production and consumption of these materials.

Fortunately, there is in the present methods of mining and treatment but little waste in the handling and treatment of the iron ores. Notably, in the Lake Superior districts not only are the high-grade ores gathered with care, but also the ores of lower grade are segregated in such manner as will permit of their easy recovery at such time as their use may become practicable. In some of the other fields the ore waste is greater, but not comparable with prevailing fuel waste, and the losses of iron in modern furnace practice are insignificant. The most serious sources of waste in the supplies of iron and steel are in the losses of the finished metal in use, through wear and through rust and other destructive agencies. These losses are permanent, are increasing and are believed to be largely preventable.

The production of gold increased rapidly from the middle of the last century, but dropped from \$60,000,000 in 1852 and 1854 to \$30,000,000 in 1883, and subsequently increased to its maximum of

⁴Production for 1908 and 1909 being estimated.

more than \$94,000,000 in 1906. The production of gold^s in the United States from 1792 to 1847 was \$24,537,000; from 1848 to 1872, \$1,204,750,000, and from 1873 to 1907, \$1,741,784,000. The total production of gold in the United States from 1792 to and including 1907 was 143,725,839 ounces, valued at \$2,971,071,000.

The important production of silver beginning about 1860 reached its maximum of 63,500,000 ounces in 1892, since which time the average annual production has been about 55,000,000 ounces. The total recorded production of silver^s in the United States is as follows: From 1792 to 1847, \$404,500; from 1848 to 1872, \$157,749,900, and from 1873 to and including 1907, \$1,351,841,600; a total of 1,730,708,200 ounces, valued at \$1,509,996,000.

The production of copper has for many years been steadily increasing. It reached its maximum in 1906, when the output was nearly 918,000,000 pounds. Its production may be expected to increase largely in future years, as the uses of copper are increasing both in quantity and variety. The total production from 1860 to and including 1907 was about 12,075,000,000 pounds. Its production by decades illustrates the rapid development of the industry, as follows:

For ten years, 1861-1870, about 218,504,000 pounds.
 For ten years, 1871-1880, about 421,120,000 pounds.
 For ten years, 1881-1890, about 1,639,231,000 pounds.
 For ten years, 1891-1900, about 4,348,713,000 pounds.
 For seven years, 1901-1907, about 5,448,000,000 pounds.

The production of lead and zinc during the past thirty years has increased rapidly, reaching a maximum in 1907. The production of lead recorded for 1825 was 1500 short tons. The total production from 1830 to 1907, inclusive, was 6,829,691 short tons. The production by decades since 1830 illustrates the progress of the industry, as follows:

For ten years from 1830 to 1839, inclusive, 122,500 short tons.
 For ten years from 1840 to 1849, inclusive, 247,000 short tons.
 For ten years from 1850 to 1859, inclusive, 168,800 short tons.
 For ten years from 1860 to 1869, inclusive, 153,900 short tons.
 For ten years from 1870 to 1879, inclusive, 547,780 short tons.
 For ten years from 1880 to 1889, inclusive, 1,345,711 short tons.
 For ten years from 1890 to 1899, inclusive, 1,824,657 short tons.
 For the 8 years from 1900 to 1907, inclusive, 2,417,843 short tons.

^sThese figures should be credited to R. W. Raymond for 1792 to 1873, and to the U. S. Geological Survey for subsequent years.

The production of zinc (spelter) in 1873 was 7343 short tons. By 1875 it had reached 15,883 short tons. For the ten years from 1880 to 1889, inclusive, the spelter production was 380,852 short tons; from 1890 to 1899, inclusive, it was 901,591 short tons, and for the eight years from 1900 to 1907, inclusive, it was 1,446,035 short tons. This gives a total production from 1880 to 1907, inclusive, of 2,751,654 short tons.

The waste in the mining and treatment of gold, silver, lead and zinc has diminished as modern practice has grown in efficiency, but in many cases it is still large, in some cases amounting to nearly 50 per cent. of the total possible product. The waste in the treatment of copper is generally less than that for the other of these metals, though the loss in the treatment of certain of the ores of copper exceeds 25 per cent., this being additional to losses in mining. Much of this waste in the mining and treatment of these metals is a temporary waste, the neglected and often buried low-grade ores, as well as the tailings, becoming available for treatment by later and more efficient processes.

Use and Waste of Structural Materials.—The supplies of many of the materials used in building and engineering construction, such as stone, sand, gravel, slate, clays, cement, lime, etc., are practically inexhaustible, and for that reason need not be extensively discussed.

The use of these materials has been restricted heretofore, especially in town and rural building, because of the greater cheapness of timber construction; but owing to improved methods the cost of buildings of concrete and other fire-resisting materials has been diminished, while that of wood products has advanced. Within the last decade the value of cement manufactures increased from \$9,900,000 to \$55,900,000 for the year, or nearly sixfold, and the value of clay products from \$74,500,000 to \$159,000,000, or more than double. In the same period the value of building stone increased from \$28,600,000 to \$71,100,000, or nearly threefold. A still larger relative increase in the use of these more durable building materials may be looked for during the next several decades, since the Government is determining the strength, durability and fire-resistant properties of these materials, and is thus gaining and disseminating information which will serve as a basis of cheaper and more permanent structures.

The waste of minerals used in building and engineering con-

struction comprises (1) that due to improper and wasteful methods of mining or quarrying and preparing for market; (2) that due to the use of excessive quantities of material because of a lack of knowledge concerning strength and durability; and (3) that due to destruction by fire. The losses from the last cause alone during 1907, due to the direct burning of buildings and their contents, were \$215,000,000.

Other Mineral Substances.—The scope of the present article does not permit any extended discussion of the production and waste of other less-important mineral substances, of which, as mentioned above under the several classes, some 50 or 60 are produced and used in our industries. However, attention may be called to the fact that of certain of these, such as bauxite, corundum, mica, the ores of manganese, chromium, tin, platinum, antimony, tungsten, etc., the production in the United States is already inadequate for our industrial needs, and the domestic supplies of these materials, even though mined and used with the greatest efficiency, will probably always need to be supplemented or replaced by substitutes or by importations from other countries.

Other materials, such as asphalt, sulphur, magnesite, ochre, borax, talc and arsenic, are found in such quantities that even at the present increasing rates of production the supplies of these materials may be expected to meet the needs of the nation beyond the limits of the present century. There are still other mineral substances, such as clays, fullers' earth, grindstones and other abrasive substances, feldspar, salt, gypsum, etc., of which, notwithstanding their importance and the increasing rate of their production, the domestic supplies may be expected to meet all future demands.

Will the Increase in Mineral Production Continue?—Attention has been called above to the continued increase both in the total mineral production and in the per capita mineral production of the country. It is interesting to note in this connection that there has been a correspondingly marked increase in the per capita consumption of mineral products. The consumption of such products has increased far more rapidly than the population. Thus, in 1880 we used of coal 1.4 tons per capita; in 1890, 2.3 tons; in 1900, 3.2 tons, and in 1907, 4.7 tons.* Of pig iron we used in 1880, 200 pounds per capita; in 1890, 320 pounds; in 1900, 391 pounds, and in 1907, 686

*Figures for fiscal years, taken from Reports of the U. S. Bureau of Statistics, for both coal and iron.

pounds. Of copper in 1890 we used 3 pounds per capita; in 1900, 4.6 pounds, and in 1907, 6.4 pounds. Of cement we used in 1890, 70 pounds per capita; in 1900, 92 pounds per capita, and in 1907, 228 pounds per capita.

The population of this country has increased from 5,308,000 in 1800 to 75,569,000 in 1900. After a careful study of the details in connection with this increase and the conditions under which this has come about, and a careful comparison of these conditions with those in the more densely populated countries of Europe where similar resources and climatic conditions maintain, Mr. Henry Gannett, of the United States Geological Survey, has estimated that the population of this country will be in 1910, 90,000,000; in 1950, about 150,000,000, and in the year 2000, approximately, 250,000,000.

In a further study of this question it should be borne in mind that during the past century the energies of the American nation were concerned largely with the conquest of the surface and other agricultural pursuits. Though the mining industry grew rapidly after the middle of the century, for years gold mining was the dominant feature. It was not until within the past quarter century that general mining and the use of mine products in manufacturing industries began to be a serious part of our national life and plans. Thus, for example, as late as 1880 the value of our coal product for that year was a little more than \$95,000,000, as compared to gold and silver production of about \$71,000,000, whereas in 1907, with a gold and silver production of \$128,000,000, our coal production had reached \$615,000,000.

If, therefore, in connection with the rapid, realized and prospective increases in our population and the still more rapid increase in our per capita production and consumption of mineral products, we bear in mind the enormous resources of this country in fuels, iron and other essential mineral materials, the genius of our people for industry, and the extent to which climatic and other conditions favor manufacturing developments, one cannot fail to realize that this nation is to become more and more a great mining and manufacturing nation; that it must and will develop its varied domestic industries to supply not only its own growing needs, but also the demands of a large and steadily increasing export trade; thus extending and enlarging for generations to come the varied industries in which mineral products are used; and, therefore, that the per capita

production and consumption of our mineral products will continue to increase for generations to come even more rapidly than our population. Already the products of the mine make up 65 per cent. of the total freight traffic of the country.

In order that we may be able to supply the raw materials for these increasing industries it will be necessary that we handle wisely our mineral supplies, not only preventing all unnecessary waste, but also practicing the highest possible efficiency in the use of these materials.

Extending the Life of Our Supplies.—The most important phase of the conservation problem is that concerned with the possibility of preventing unnecessary waste and of bringing about the most efficient use of our resources. We need to know how we can extend the life of these resources to meet the future as well as the present needs of the country. Investigation is undoubtedly the most important agency for the accomplishment of this purpose. Much has already been accomplished through this agency. The improvements brought about through the engineering profession during the past half a century in the manufacture of steel and other metallurgical operations and through increased efficiency in the development and operation of power plants, are already saving to the nation more than 100,000,000 tons of fuel per annum. Through the work of the chemist and metallurgist in the improvement of technologic processes used in other metallurgical and manufacturing industries new and more efficient processes have made enormous savings in the resources of the country as well as in the capital required.

Three lines of investigation will prove useful in the continued development of these economies: (a) a great number and variety of individual investigations of specific problems by the engineers and chemists in private practice; (b) investigations of a more general but also somewhat local character by each of the several states in which are located extensive mining and metallurgical industries; (c) investigations by the general government of those problems which on account of their general character may be of service to the mining, metallurgical and manufacturing industries throughout the country.

A number of such investigations by the federal government are already well under way, and are yielding important general results.

Investigations by the states are for the most part limited to the exploration and mapping of local mineral resources. The private or individual investigations relate for the most part to specific individual problems connected with the development of specific local industries, and are intended for individual or private gain alone.

The common purpose of all these investigations must be to indicate (a) how we can prevent waste; (b) how the mineral products may be mined, treated and used with greatest efficiency; (c) how more abundant materials may be substituted for the rarer and more costly materials.

Through careful educational work much also can be accomplished. In this work the federal and the state governments are coöperating, as are also, in an effective manner, the engineering and other allied organizations and the educational institutions throughout the country. Through wise legislation, also, much can be accomplished; but unless legislation is wisely planned and administered its influence may be more harmful than beneficial, as it may act in restraint of industry rather than by being helpful to its development.

Conservation and Legislation.—Self-interest will naturally continue to dominate the policies and activities of corporations, and these policies and activities, relating primarily to the question of temporary gain, may not always be in accord with the best interests of the community, the state or the nation. To the state and the nation alone can therefore be intrusted the ultimate guardianship of their own futures; and to this extent, at least, the conservation of resources becomes a state and, in a broader sense, a national duty and right. The United States Supreme Court, in a recent decision, says: "The state as the guardian of the public welfare possesses the constitutional right to insist that its natural advantages shall remain unimpaired by its citizens." And the federal constitution gives to Congress the right "to provide for the common defense and general welfare of the United States."

Any legislation in behalf of the wiser use of our resources should, however, be planned and drafted with care so as to guarantee for its provisions a remedial and beneficial rather than a harmful influence. The lack of uniformity in our state mining laws, even in the case of adjoining states where conditions are similar, is one of the unfortunate developments of our system. The

differences have been based, probably, upon the mistaken idea that local mining conditions in different states require different local legislative treatment. As a matter of fact, under modern commercial conditions these differences between state laws may seriously hamper the mining industry in one or another of the states.

It would be helpful to the mining industry in all the states, and helpful to the conservation movement, if mining legislation in the different states could be made measurably uniform in its provisions, leaving for special, separate treatment the few really local problems. The benefits which have often resulted from conferences and wise coöperation between individuals or states, and even between nations, would become manifest in legislative as they have in other matters pertaining to the public welfare.

Both in legislation and in public opinion we must maintain as essential a rational basis for the conservation movement which recognizes (1) the rights of the individual to property and to reasonable profits on his investments or on his labor, and (2) the paramount rights respectively of the community, of the state and of the nation to safeguard the future as well as the present welfare of its citizens.

PRESERVATION OF THE PHOSPHATES AND THE CONSERVATION OF THE SOIL

BY CHARLES RICHARD VAN HISE,
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In a very impressive paper upon *The Natural Wealth of the Land and Its Conservation*, given at the White House at the Conservation Conference, May 13, 1908, Mr. James J. Hill gave a comprehensive picture of the importance of our soil resources, and a severe arraignment of our want of foresight and reckless extravagance which unless checked in the near future threatens to impoverish our nation in its most fundamental asset.

There can be no question as to the correctness of Mr. Hill's position as to the profound importance of the conservation of the soil. Food and clothing, products of the soil, we must have. All of our other wants are subordinate to these.

Mr. Hill says: "Our agricultural lands have been abused in two principal ways: first, by single cropping, and, second, by neglecting fertilization."

In reference to these abuses he says: "The two remedies are as well ascertained as is the evil. Rotation of crops and the use of fertilizers act as tonics upon the soil. We might expand our resources and add billions of dollars to our national wealth by conserving soil resources instead of exhausting them, as we have the forests and the contents of the mines."

Mr. Hill did not mention the first cause for the depletion of the soil, that of soil wastage through erosion; but this aspect of the subject was handled by Professor Chamberlain at the conference. Also McGee and others have painted woeful pictures of the frightful loss of soil by erosion, which has removed the upper part of the soil for a large part of many states and which has even converted extensive areas into bad lands. Therefore, I shall not discuss the dumping of the soil into the sea by the rivers in incredible quantities through cultivation without reference to the conditions necessary to prevent erosion. But it is plain that we must not permit soil erosion to take place more rapidly than the soil is manufactured by the

processes of nature. To do so will be ultimately to destroy our soils. If nature manufactures the soil at the rate of one inch in a century, then the erosion must not exceed one inch in one century.

Neither shall I more than mention the question of rotation. One of the chief purposes of rotation is obvious. A crop of one kind draws heavily upon certain elements of the soil. Another does not demand so much of this element. Therefore, it is plain that by rotation of crops the elements of fertility may be drawn upon more slowly and proportionally, and thus, through proper procedure, enable the farmer to retain in the soil an adequate supply of each of the important elements.

The subject to which I wish especially to ask your attention is that of fertilizers. Mr. Hill says: "Fertilizers act as tonics upon the soil." This naturally raises the question as to our resources in these materials. The three plant foods which are most likely to be present in insufficient quantity in the soil and which are most expensive to supply are nitrogen, potassium and phosphorus.

Fortunately, in the atmosphere is an inexhaustible quantity of nitrogen. The problem is to get this free nitrogen into a form in which it can be used by plants. Until comparatively recently this was regarded as almost hopeless, but the discoveries of recent years show that there are two ways in which the nitrogen of the air may be fixed. The leguminous plants, by the aid of bacteria, combine nitrogen in large quantities with other elements and add it to the soil in a form that may be used by non-leguminous plants. By electrical methods, also, nitrogen may be directly combined with other elements. Thus, so far as this element is concerned, the problem is solved. By applying the knowledge which science has furnished us, the soil need never lack the nitrogenous element of plant food.

In the original igneous rocks the average percentage of potassium is about two and one-half. However, there are inexhaustible masses of rock in which the percentage is about three times this average. Therefore the total amount of this element is practically unlimited. By nature's processes potassium has been extensively abstracted from the original rocks and has been concentrated, so that in various parts of the continents there are large quantities of this element in a readily soluble form which are available for fertilizing the soils deficient in it. Even if in the future these segregated and soluble deposits of potassium are exhausted we may

still use the original rocks, which are more than ordinarily rich in this element, as a source from which more concentrated material may be manufactured, or the very finely pulverized rocks may be used directly as a fertilizer.

The only remaining element about which we need concern ourselves is phosphorus. This is the element which, so far as we can see at the present time, presents a profoundly serious problem in maintaining the fertility of the soil. Clarke,¹ in his *Data of Geo-Chemistry*, estimates that the crust of the earth contains only .11 of one per cent. of phosphorus, or about .25 of one per cent. of phosphoric oxide. As we have just seen, the average rocks contain twenty times as much potassium. Therefore, looking toward the distant future, if we consider ratios, we may unhesitatingly assert that the problem of maintaining the fertility of the soil in phosphorus will be twenty times as difficult as for potassium; but this ratio by no means measures the real difference, for when a deposit contains a moderate percentage of a substance it may be possible to utilize it commercially; whereas, if the percentage falls below this amount, it is without value.

It is one of the great laws of nature that, under favorable conditions, the forces and agents of rock alteration tend to segregate locally each of the elements. To such processes of segregation are due the available metallic ores, since the average amounts of the valuable materials in the rocks are far below those in the workable ore deposits.

The segregative processes of nature have fortunately concentrated phosphorus in various ways, and these deposits are the chief source of supply of our phosphates.

The earliest phosphatic fertilizer to be used was guano, mainly derived from the islands off the west coast of South America. If the segregation of phosphorus in guano were fully described it would be appreciated how slow and intricate is the process of concentration of a rare element. The story would involve, first, the solution of the widely disseminated phosphorus from the original rocks, its segregation through complex processes in the small plants and animals that become the food of fishes, which in turn become the food of the sea birds. The dry excrement of the sea bird constitutes the guano. Much of the guano contains twenty-five to forty per cent.

¹Bulletin, U. S. Geol. Survey, No. 330.

phosphoric oxide. Thus nature's processes of segregation have multiplied the amount of phosphorus in the original rock by from one hundred to more than one hundred fifty fold.

Carcilas de la Vega,² in the sixteenth century, gave "a very interesting account of the manner in which the birds producing the guano were protected by the laws of the Incas, by which it was made a crime, punishable by death, to kill the sea fowl, gather their eggs, or even to visit the islands during the breeding season."

A recent report by Robert Coker³ to the government of Peru upon the future of the guano industry and the guano-producing birds tells of "the robbery of eggs on a large scale in past years, the destruction of young and old birds, and the disturbance of the birds in their nesting grounds by the extraction of guano." He says an inevitable result "has been a great diminution in number." Mr. Coker's report pleads for regulations to increase the number of birds and thus to maintain perpetually a large supply of guano. With reference to the most precious of the fertilizers this twentieth century presents an ignominious and startling contrast with an ancient civilization.

In considering the ill treatment of the guano-producing birds it is difficult for one to retain composure and speak with moderation of the odious combination of human greed and brutality exhibited by this case of exploitation of a natural resource, in complete ignorance and absolute disregard of its effect upon the future of our race. The phrase "killing the goose that laid the golden egg" was never more applicable.

Long before man existed on the earth the ancient phosphatic segregations of birds and other animals formed upon an extensive scale were buried among the sediments and have been partially preserved in the rocks. These deposits constitute the chief sources of our mineral phosphates. Until recently the most extensive known deposits were those of Florida, South Carolina and Tennessee. In the year 1907 in these states almost exclusively, according to Mr. F. B. Van Horn, 2,265,343 tons of phosphate rock were produced. While the amount exploited is now large, none of the scientists who have examined these deposits hold out any hope that their extent is so great that they can be relied upon as a source of phosphate fer-

¹Johnson's Universal Ency., Vol. 4, p. 52.

²Science, July 10, 1908, p. 60.

tilizer for more than a very brief period. Van Horn estimates that the high-grade rock will be exhausted at the present rate of mining in about twenty-five years.

Aside from these southern phosphates, we gain small amounts of phosphorus as by-products in the concentration of the magnetite iron ores of the east and from the slag of steel manufactured by the basic and open-hearth processes. These operations segregate the small amounts of phosphorus in the iron ores so as to give the by-products a marketable value. But from these sources we cannot expect more than an insignificant fraction of the phosphatic fertilizer required by the agricultural interests of the United States.

Fortunately, recent investigations⁴ by the officers of the United States Geological Survey have shown that in Utah, Wyoming and Idaho are phosphatic deposits, regarded by Weeks and Ferrier, the reporting officers, as more extensive than have as yet been known to exist in this country.

At a number of places a rich phosphate bed five or six feet thick has been found, and above this bed are from fifty to one hundred feet containing thin layers of phosphate. While this western supply of phosphates is doubtless large, the explorations have been far too scanty to warrant any quantitative statement, and even under the most favorable hypothesis of continuity throughout the formation in which they exist, and of this they are sure to fall far short, they would still not be adequate to meet the needs of the nation through the centuries to come.

As yet the phosphate deposits of Utah, Wyoming and Idaho remain practically untouched. They are one of the most precious of the natural resources of the nation, having a value inestimably greater than might be supposed from the present marketable value of phosphate rock.

In Canada there are areas of crystalline rocks in which phosphates have been locally segregated. Also in other countries there are phosphatic deposits. But upon these foreign supplies we can in no way depend. The demand for phosphatic fertilizers by the agricultural interests of each country is sure to be so great that it may be confidently predicted that in the near future no nation will per-

⁴Investigations relating to phosphates and phosphorus in 1907, F. B. Weeks and W. F. Ferrier, Bulletin No. 315, U. S. Geol. Survey.

Investigations relating to phosphates in 1907, F. B. Weeks, Bulletin No. 340, U. S. Geol. Survey.

mit the exportation of phosphates, with the possible exception of countries like Peru, where large quantities are being produced each year through bird life.

The general and alarming decrease in the crop yield per acre in various states, so well described by Mr. James J. Hill, is largely due to the depletion of the soil in phosphorus. This is clearly shown by the investigations of the various agricultural stations. In order that the present relatively small productivity of the southern states may continue it requires the use each year of many thousands of tons of phosphate fertilizer. Even the soils of the rich central states, the garden of the United States, are deficient in this important element. The experiments of the Ohio station show that the use of phosphatic fertilizer largely increases the crop yield and is a source of great profit to those using it. Indeed, the work of this station upon different fertilizers showed that "for the soils tested in their experiments phosphorus was the controlling element in producing an increase in the cereal crop."⁵

Even for Illinois, correctly regarded as one of the most fertile states in the union, an extensive investigation by the state experiment station shows that "none of the soils are very rich in phosphorus, while many of them are considerably below the standard fertile soil, and two or three soils of large area are markedly deficient in that element, particularly the large areas of so-called white clay soil."⁶

These studies in Ohio and Illinois are confirmed by quantitative studies in Wisconsin. Whitson finds as a result of the average of nine typical tests that "the surface eight inches of virgin soil contains 2877 pounds of phosphoric oxide per acre, while that of the cropped fields contains but 1813 pounds, an average loss per acre on these cropped fields of 1064 pounds, or thirty-six per cent. of its original content. The average period of cropping for these fields has been 54.7 years." In other words, during the past half-century in Wisconsin one-third of the original phosphorus of the soil has been lost in the cropped fields. What has been proved for Ohio, Illinois and Wisconsin and other states where tests have been made is unquestionably true for the other states in the country which have been settled for some time.

⁵Ohio State Agricultural College, Bulletins Nos. 141, 182.

⁶Illinois Agricultural Experiment Station, Bulletin No. 68.

In what condition will the soil of the United States be as to phosphorus content fifty years hence if this process of depletion be allowed to continue unchecked?

The phosphorus which is taken out of the soil by cropping could be largely returned to it if all the manure of the domestic animals were saved and utilized. The experiments of the Ohio station show that the manure from domestic animals retains more than three-fourths of the phosphorus contained in the food and bedding, a large part of the remaining one-fourth being built up in the systems of the animals. Thus, if the excrement from all domestic animals, both in town and country, were returned to the soil more than three-fourths of the phosphorus would go back to it. But as yet our agricultural population is most delinquent as to the manner in which they handle the feces and urine of the domestic animals. Whitson estimates that the loss of phosphates in manure as a result of waste and wash amounts in Wisconsin to fifteen per cent., and this is probably less rather than more than the average for the country as a whole. The agricultural colleges and experiment stations, through teaching the students and through extension, have a heavy responsibility in driving home to the farmer the necessity of stopping the irreparable waste of the valuable fertilizers and especially the phosphates.

The phosphates which pass into the bones of domestic animals, so far as they are killed in the great abattoirs, become valuable by-products, which are sold to the farmer, and thus are returned to the soil.

There remains only to consider man as a source of phosphates. In this country there has been as yet practically no attempt to return the excrement of man to the soil. This is true of both country and city. In the country the solution of the problem of handling the human excrement so as to use it as a fertilizer is comparatively easy, but the education of the farmer so that he will apply the solution will prove a difficult task, which must be taken up at many thousands of centers. At the present time, through our concentrations into cities and towns, and the running of sewage into the streams, a large proportion of the human excrement, as well as that of animals, rich in phosphorus, goes to the rivers and thence to the sea, so that there is vast and unnecessary loss of the phosphates. Whitson estimates that the loss in the cities due to man alone is the equivalent of two or three pounds of phosphoric oxide per acre for the entire cropped

region of the United States. Suppose this loss to be two pounds, this is $1/1000$ of a ton, which amounts for the 400,000,000 acres to 400,000 tons of phosphoric oxide, or equivalent to 1,200,000 tons of phosphate rock. The method of sewage disposal now in vogue should be wholly abandoned and the phosphates of the sewage returned to the soil. The saved phosphates alone would more than justify the cost, without taking into account the enormous advantages of freeing the living water from pollution.

The wide disbursal of vast quantities of phosphorus which it took the process of nature an indefinite period to segregate, must cease. The loss is irreparable. In this matter we may well turn to China and Japan for guidance. The evidence is clear that the people of these ancient nations, which have had a dense population for many centuries and have preserved the fertility of their soils, have carefully saved and utilized animal and human excrement.

At the present time there is need for much more phosphate rock than we now quarry to neutralize the annual loss of the soil due to the waste of animal and human excrement. Whitson's investigations show the loss of phosphoric oxide in the fields tested in Wisconsin to be annually about twenty pounds per acre. To be conservative, let us suppose that the average loss for the United States is but one-half of this amount. For 400,000,000 acres, less than the total of the cropped land, this would represent an annual loss of 2,000,000 tons of phosphoric oxide; but since the phosphate mined is only about one-third phosphoric oxide, to supply this amount would require 6,000,000 tons of rock.

If we suppose the total accumulated loss of the soils of the United States from natural conditions due to cropping is one-half that found by Whitson in the fields tested in Wisconsin, the amount would be a quarter of a ton per acre, and for 400,000,000 acres, 100,000,000 tons of phosphoric oxide, which is the equivalent of 300,000,000 tons of phosphate rock. Thus, to make good the phosphorus already lost to the soil in the United States by reckless disregard of the future, would require the present output of our mines for more than a century, even if at once it were possible to prevent further depletion of the soil, and no more of our phosphate rock were required to neutralize the current waste.

In Sweden, the government decides as to whether it is wise to allow iron ore to be exported, and limits the amount which may

be sent out of that country each year. In this country we have allowed to pass unnoticed the establishment of the Franco-American Consolidated Phosphate Company, the majority of the stock of which is owned abroad, and which has already acquired extensive holdings of phosphate lands in Tennessee. In 1907, even before the formation of this company, forty per cent. of the phosphate rock mined was exported, and doubtless the organization of this company will increase the proportion. This state of affairs could exist in no other civilized nation. Indeed, by the statesmen of foreign civilized nations exportation of phosphates would be regarded as unthinkable folly. If the statements presented in this paper are even approximately true, and it is believed that every one of them is justified, there should be a law which prohibits absolutely the exportation of a single pound of phosphate rock. It is not certain that the total supply of phosphate rock in the southern and western states together is sufficient to restore the lands of the United States to their original fertility in phosphorus, to say nothing of providing for the great annual loss through our present methods of handling fertilizers produced on the farms, and disposal of sewage.

During the summer of 1908 the attention of President Roosevelt was called to the facts presented in this paper, and it was urged that the western phosphate lands now owned by the Government should be withdrawn from private entry until such time as legislation could be secured to permit their exploitation upon a lease system, containing a clause preventing the exportation of the phosphates. Later the matter was again presented to the President and to James R. Garfield, then Secretary of the Interior. Both the President and Mr. Garfield instantly appreciated the fundamental importance of the matter, and on December 9, 1908, the phosphate lands of the west were formally withdrawn from private entry, thus retaining these deposits of fundamental importance to the future of the nation as its property.

It now remains for Congress to do its part in enacting appropriate legislation so that the fruits of the acts of the President and the Secretary may be permanently secured to the people. If no other result than this had come from the movement inaugurated by President Roosevelt to conserve the natural resources of the nation, all that has been done in this connection would have been justified many fold.

Hopkins' well says: "If he who makes two blades of grass grow where but one grew before is a public benefactor, then he who reduces the fertility of the soil so that but one ear of corn grows where two grew before is a public curse."

That nation only can reach the highest intellectual and spiritual level that is well nourished. Nourishment requires food. Food depends upon the necessary elements to feed the plants in the soil. Of these we can see no future danger so far as nitrogen and potassium are concerned, but because phosphorus is relatively so rare an element, because it has been segregated by the processes of nature in so limited an amount, since it is so essential to the growth of both plants and animals, it is clear that we should exercise the utmost foresight in conserving the natural concentrations of phosphorus and retaining that still in the soil.

Already we find our most basal resource, the soil, depleted by erosion, depleted by single cropping, and depleted most seriously of all by loss of phosphates. It is a fundamental duty of this generation to transmit to the succeeding generation the soil of the country undiminished in its productivity, for all other resources are as naught if the soil fails us. The damage that we have already done to this resource which should remain perpetually undiminished is inestimable and largely irreparable. The question now confronts us, shall we continue our present course of reckless impoverishment of the soil, taking no thought of the morrow?

We should work with the agents of the earth rather than reverse their work, as we have been doing since American settlement began.

How long shall this nation endure? Or more exactly, how long shall human beings occupy this land. As yet the human race is in its infancy. History goes back a few thousand years. The human race may have existed some score of thousands or even some hundreds of thousands of years; but while in years there is a considerable past history of the race, it is only within the past two centuries that the lands of the country have been subject to agriculture upon an extensive scale, and the main drafts upon the soil have been within the past century.

How long shall our people endure? We should think, not of a hundred years, nor of a thousand years, but of hundreds of thou-

sands, or of millions of years of development of the human race. There is no reason, from a geological point of view, why human beings may not live upon this earth for millions of years to come, perhaps many millions of years, and so far as we are concerned, such periods as these are practically infinite.

These considerations impose upon us as our most fundamental duty the transmission of the heritage of our natural resources to our descendants as little diminished as possible. This is an individual responsibility, as well as a state and national responsibility. There is a strongly developed opinion at the present time that the owners of great wealth and especially those who control great natural resources should act as trustees for the nation. This is easy to see; but a man who owns a farm is equally a trustee to the nation for this property. If, at the end of his life, the farm goes to his son depleted in richness, he is as truly faithless to his trust as are the great interests that think only of present gain and wastefully exploit the natural resources of the country. Each in proportion to his own responsibility is a traitor to the nation. At the present time, fortunately, this sense of stewardship is gaining possession of some of those who control the great resources of the nation. As yet there is scarcely a glimmering of responsibility in the case of the smaller holder of natural resources. But the future of the nation is only safe when small and large holder alike, from the man who owns forty acres of land to the small group of men who control the anthracite of the nation, shall administer their trust primarily for the benefit of succeeding generations rather than for themselves.

I do not hesitate to assert that from the point of view of our descendants, this question of conservation of our natural resources is more important than any political or social question, indeed, more important than all political or social questions, upon the solution of which we are now engaged. Not only is it more important, but it is pressing, for already our unnecessary losses in reference to the soil are irremediable, and the situation is growing steadily worse.

It is necessary that a great campaign of education be inaugurated at once with reference to the conservation of the soil, just as there has been a campaign of education with reference to the conservation of the forests. The task is an enormous one, indeed vastly greater than that carried on with reference to our other resources, because of the fact that the land holdings are so subdivided; but the cam-

paing of education must be carried on, and as a part of it the laws must be developed until we reach the situation where no man dares so to handle his land as to decrease its fertility. If present methods are allowed to continue, it is certain that this country will be able to support only a sparse population. Only by the conservation of our soil undiminished in its fertility can we hope to be able to provide for the hundreds of millions of people who in the near future in the United States will be demanding food and clothing. The conservation of the soil is the conservation of the basal asset of the nation.

BOOK DEPARTMENT

NOTES.

Adams, C. C. *A Textbook of Commercial Geography.* Pp. xvi, 507. Price, \$1.30. New York: Appleton & Co., 1908.
Reserved for later notice.

Alden, Margaret. *Child Life and Labour.* Pp. 184. Price, 1s. London: Headley Brothers, 1908.

The book is designed primarily as a source of information and is therefore arranged logically with headings and sub-headings and under each a great array of facts and statistics. It serves its purpose well as it presents the various phases of child life in a city in a comprehensive, scientific manner. Beginning with an historical discussion, the author takes up infant mortality, the child in the home, in the school, in the factory and in the juvenile court. While dealing exclusively with English conditions, the book is, nevertheless, suggestive and helpful to Americans working in the same field.

Alymer-Small, S. *Electrical Railroading.* Pp. 924. Price, \$3.50. Chicago: Fred. J. Drake & Co., 1908.

An elementary manual for the study of electricity and electric motors by those who wish to work up the subject without class instruction. The subject is developed in a series of graded lessons, and is presented in the form of questions and answers.

Babbitt, J. B. *Physical History of the Earth in Outline.* Pp. 212. Boston: E. E. Sherman & Co., 1908.

There are two distinct impressions which this book makes on the reader's mind: First, that it does not live up to the scope suggested by the pretentious title; and, second, that the style in which it is written is so extremely Johnsonian as to make whole sections well-nigh unintelligible.

The student of earth sciences usually assumes that the physical history of the earth includes all the changes in character which have taken place since the beginning. It occasions not a little surprise, therefore, after a good deal of laborious wading, to realize that the book is merely elaborating a hypothesis to account for glacial phenomena. It is then but a minor incident in the physical history of the earth which is here given.

It is a difficult task to dig out this new hypothesis from the great mass of words, parenthetical clauses and modifying phrases which load every sentence. In brief, the theory is based on the known decrease in the obliquity of the ecliptic; a decrease which has amounted to something less than 27' of a degree in about 3000 years. This decreasing obliquity, it is claimed, continuing at the same rate through long periods of time, would lessen the amount of

heat sufficiently, in high latitudes, to produce glacial cold. The fact of varying obliquity has long been recognized by astronomers, who regard it as a more or less regular oscillation confined within very narrow limits. The author, while accepting the astronomical proof of decreasing obliquity, summarily discards the idea of oscillation and presupposes continuous variation in one direction in order to get the degree of change necessary to induce glacial cold. The whole idea, therefore, hinges on a purely imaginary condition which appears to be contrary to fact.¹

Baddeley, John F. *The Russian Conquest of the Caucasus.* Pp. xxviii, 518. Price, \$5.00. New York: Longmans, Green & Co., 1908.
Reserved for later notice.

Bellom, Maurice. *L'Enseignement Economique et Social dans les Ecoles Techniques.* Pp. 508. Price, 5 fr.

Bellom, Maurice. *La Mission Sociale des Elèves des Ecoles Techniques.* Pp. 283. Price, 3 fr. 50. Paris: Larose & Tenin, 1908.

It is interesting to find an author, who is Professeur d'Economie Industrielle à l'Ecole Nationale Supérieure des Mines, presenting a social program for technical students. M. Bellom firmly believes that educational institutions fail to emphasize the social responsibility of the engineer, the architect and those of allied professions. He seeks to establish this contention in the second volume. Inasmuch as most of the professional students come from the better situated families they should recognize a responsibility for helping educate those who have had to go to work. M. Bellom then reviews the work of various charitable and educational agencies and advocates the establishment of what we should call University Extension Courses. In the first volume a plea is made for the introduction of social courses in technical schools. A large part of the book is filled with digests of the curricula of schools and universities in various countries.

To Americans the suggestions are not particularly new, but the volumes are interesting and throw many side lights on French conditions.

Bradley, A. G. *The Making of Canada.* Pp. 396. Price, \$3.00. New York: E. P. Dutton & Co., 1908.
Reserved for later notice.

Brückner, A. *A Literary History of Russia.* Pp. xi, 558. Price, \$4.00. New York: Scribner's Sons, 1908.
Reserved for later notice.

Bureau of American Ethnology, Bulletin 34. Physiological and Medical Observations Among the Indians of Southwestern United States and Mexico. Pp. iv, 460. Washington: Government Printing Office, 1908.
This volume contains a valuable series of measurements of Indians, with many

¹Contributed by Walter S. Tower, University of Pennsylvania.

studies of their native remedies for disease. There are many charts and illustrations.

Butler, Nicholas M. *The American as He is.* Pp. 104. Price, \$1.00. New York: Macmillan Company, 1908.

This little volume comprises three lectures delivered by the author before the University of Copenhagen in September, 1908, on "The American as a Political Type," "The American apart from his Government" and "The American and the Intellectual Life."

Dr. Butler, throughout the lectures, justifies his use of "the American" in the singular because he believes that under the divergent American types there lies an essential unity, not only in tongue, but also in a "sense of justice, fair play and personal liberty."

In his first lecture he reaches the conclusion that in America every demand for political action is tested in "accordance with well-settled and familiar principles of law and equity. It is this rule of law, of principles, not of men, which dominates all American political action."

In the second lecture the author maintains that the American is essentially individualistic, "has but little to do with the Government, and sees but few of its agents." In this and the fact that America is still a land of "unlimited opportunities to rise" he sees the explanation of the small hold that Socialism has been able to make in America. The only clouds which he sees on the political horizon, are, first, our possible incapacity "to subdue and assimilate the alien elements" brought to us by immigration, and, secondly, "the passion of many of the people for legislating in regard to all sorts and kinds of things that legislation had better leave alone."

In the third lecture, on the intellectual life, Dr. Butler characterizes the American people as being "almost Socratic in their acceptance of the principle that knowledge will lead to right and useful action and conduct," and as having "an almost fanatical belief in education." He views this as a rather favorable tendency. The University, he maintains, if true to its duty, should lead the nation "away from government and life by impulse and appetite, toward government and life by reflection and experience."

Cambridge Modern History, Vol. XI, *The Growth of Nationalities.* Pp. xxxix, 1044. Price, \$4.00. New York: Macmillan Company, 1909.
Reserved for later notice.

Carlton, F. T. *Economic Influences upon Educational Progress in the United States, 1820-1850.* Pp. 135. Price, 50 cents. Madison: University of Wisconsin, 1908.

The object of this doctor's dissertation is to trace the rise of the tax-supported public school system, during the period 1820 to 1850, and its relation to the economic and social forces of the time. The thesis advanced is to the effect that the free public school "evolved out of heterogeneity of population, improvement in methods of production, the specialization of industry, the division of labor, the growth of factories and the separation of home life from industrial occupations" consequent on the rise of the factory

system, and that "the cities and the working classes were chiefly instrumental in placing our schools upon a tax-supported basis."

Chamberlain, Arthur H. *Standards in Education.* Pp. 265. Price, \$1.00. New York: American Book Company, 1908.

Chastin, J *Les Trusts et les Syndicats de Producteurs.* Pp. viii, 304. Paris: Felix Alcan, 1909.

The latest addition to Alcan's library of social science is a book on trusts which first sketches their development historically in the various countries of Europe and the United States, and then studies them in their relations to competition, prices, wages and finance, concluding with a section on their social influence as affecting the individual and the state. As regards the United States, at least, no new facts are presented, nor do the conclusions drawn seem to differ much from those of previous writers.

Cheyney, E. P. *Readings in English History.* Pp. xxxvi, 781. Price, \$1.80. Boston: Ginn & Co., 1909.

Reserved for later notice.

Clarke, Charles. *Sixty Years in Upper Canada.* Pp. vi, 321. Price, \$1.50. Toronto: William Briggs, 1908.

The opening chapters are devoted to a description of the author's boyhood in England, and the circumstances under which he began life in Upper Canada; the others to a narration of the political history of Ontario, without much reference to the general development in Canada. About half the book deals with Sir Oliver Mowat's administration and its associations, with a large number of biographies of the men more or less prominent in the parliaments throughout this period, nearly every character mentioned being personally known to the author.

Mr. Clarke's experience as Speaker and Clerk of the Ontario Legislature has evidently served him in good stead. The literary style is good, the history accurate. As a memoir based on the author's recollections covering a period of nearly eighty years, the work will doubtless be especially of interest to those who have observed the passing of the events of that period.

Cole, W. M. *Accounts: their Construction and Interpretation.* Pp. 345. Price, \$2.00. Boston: Houghton-Mifflin Company, 1908.

Professor Cole's book is a treatise on that part of accounting which above all other divisions of the field is of the most importance and which unfortunately up to this time has not been given the attention it deserves. The book is divided into two parts, in the first of which the author treats of the principles of bookkeeping. It is this part of his work which is intended for those students who may not be familiar with bookkeeping practice. The author fails to make his meaning sufficiently clear. The distinctive feature of this portion of the work is the author's treatment of the principle of debit and credit. Responsibility for value he makes the basis of all debit and credit entries. He debits a person, cash, or discount when that person or thing assumes the responsibility for value intrusted to it, and credits the account when this responsibility is discharged. The objection to this rule is that, as applied

to most cases, it is but a figure of speech and therefore hardly suitable for a "business man or student of affairs."

This criticism does not apply to the second part of the book. Professor Cole intends this for the student in advanced accounting, and has more than fulfilled his intention in this respect. It takes up a discussion of the principles of accounting. The author is bound by the limits of the space at his command, so that some subjects of great importance are dismissed with a very few words. This is particularly noticeable in the chapter on depreciation and that on bank accounting.

On the whole, Professor Cole's book is not of great value to the student of higher accounting, but presents the material in a way calculated to make the reader think.

Davis, W. M. *Practical Exercises in Physical Geography*. Pp. 148. Price, 50 cents. Boston: Ginn & Co., 1908.

This manual and its accompanying atlas are designed to serve as a guide for laboratory work in connection with any of the standard texts on physiology. The main exercises, with the many sub-topics included under them, cover practically every phase of systematic physiography, including the main phenomena of the atmosphere. It is doubtful, however, if the manual as it now stands will prove entirely feasible and satisfactory in the high school years; first, because of the large amount of purely mechanical work to be done by the student and secondly, because the ideal, rather than the actual, conditions are made the basis of numerous exercises.

One cannot help being impressed with the tremendous amount of painstaking labor which the manual and atlas represent. Taken together, they stand as the most important advance in years in the laboratory teaching of the systematic study of land forms.

Day, Clarence M. *Accounting Practice*. Pp. viii, 318. Price, \$6.00. New York: D. Appleton & Co., 1908.

The author, a certified public accountant of the state of New York, is a man of considerable experience in his particular field and one who is thoroughly qualified to write upon his subject.

He divides the book into four parts covering the methods of conducting an audit, cost accounting, operating forms and report forms. It is plain to be seen from the manner of presentation that the author is a practical man and not a theorist. The suggestions as to the methods for planning and performing audit work and the instructions as to the analyzation of accounts and the preparation of reports for submission to clients are explained in a straightforward and simple yet forceful manner. If the publishers of the book were to take the first part and put it out as a separate volume it would make an excellent manual of audit for junior accountants.

The material dealing with the subject of cost accounting is instructive and the methods of computing the percentage costs are excellently presented, as are also the instructions for the installation of a complete cost system. The model systems exhibited show thought on the part of the author, impressing one with Mr. Day's comprehensive knowledge of the subject which

he is treating and also with his apparent desire to do away with all unnecessary details which in many modern methods confuse the essential points to be gained.

The last part of the volume consists entirely of forms upon which the cost systems are based and also of suggested reports. The full text, exhibits and statements of an accountant's report setting out in detail the methods of presenting the results of an audit are excellent.

Eder, M. D. *The Endowment of Motherhood.* Pp. 72. Price, 1s. London: The New Age Press, 1908.

Dr. Eder's "Endowment of Motherhood" contains an admirable discussion of motherhood, the physical condition of the children of to-day and our present methods of repaying the mothers for their services. The plan proposed by Dr. Eder to remedy the existing evils is an extremely radical one, and would involve an entire change in our existing social conditions, changing many of them for the better undoubtedly, but causing a disturbance the recovery from which could not be depended upon. He suggests the support of mothers, during the period when they are unable to support themselves. All children irrespective of legitimacy are to be supported by a rather involved communistic method. The view of the problem is materialistic and, therefore, not an impartial one.

Elwang, W. W. *The Social Functions of Religious Belief.* Pp. 99. Price, \$1.00. Columbia, Mo.: University of Missouri, 1908.

A review of various important theories of the social function of religion, such as those of Comte, Spencer and Kidd, and an attempt at more adequate statement. Contains the ordinary arguments for the social value and necessity of religion, but nothing new.

Faunce, W. H. P. *The Educational Ideal in the Ministry.* Pp. 286. Price, \$1.25. New York: Macmillan Company, 1908.

This volume is of great value because the author has had experience, both as a preacher and educator. "What he has heard and has seen with his eyes and his hands handled, he makes known to us." He presents a point of view rather than a compendium of rules and regulations. He maintains that the minister should be thoroughly furnished to present the truth full-orbed, in the language of the age in which he lives; he must have the assurance of the prophet and the patience of the educator; must strike the note of universality and should consider nature and humanity not as fixed, but fluid.

Since the sole aim of Christianity is to make good men, the preacher should explain goodness and make it imperative and alluring. He must educate the conscience of humanity. He ought to be conversant with the sciences that deal with man, biology, anthropology, sociology and psychology. He must know what is in man. Physical fervor will not serve as a substitute for ideas. Not what he believes, but what he emphasizes will determine the success of his ministry.

The church deals with method, the college with process, and in order to reach the college student, the preacher must employ the analytical as

well as the synthetical method. Colleges should exalt the creative above the critical. Educational institutions furnish a minister only one-half his training, the remainder must be acquired by his task.

Like his Master, the minister must incarnate his teachings, point to brighter worlds and lead the way. He should be a teacher sent from God, a workman not to be ashamed, rightly divining the truth as it is in Jesus. The best place for a minister is where he is most needed.

Forse, W. H., Jr. *Electric Railway Auditing and Accounting.* Pp. 157.

Price, \$2.00. New York: McGraw Publishing Company, 1908.

This is a clear and systematic explanation of a method of keeping the accounts of electric railways, written by the treasurer of the Indiana Union Traction Company. The construction, financial, traffic and operating accounts are explained with the aid of numerous blank forms. There are twenty-four chapters, the last two dealing with "graphic statistics" and the "classification of accounts."

Fowler, O. S., and L. N. *Hereditary Descent.* Pp. 189. Price, \$1.00. New York: Fowler & Wells Co., 1908.

Fowler, W. W. *Social Life at Rome.* Pp. xiii, 362. Price, \$2.25. New York: Macmillan Company, 1909.

Gehring, Albert. *Racial Contrasts.* Pp. 238. Price, \$1.50. New York: Putnam's Sons, 1908.

Harrison, Frederic. *National and Social Problems.* Pp. xxxi, 450. Price, \$1.75. New York: Macmillan Company, 1908.

Though some of the essays in this collection were written in the early eighties, none are dry—the subjects have an intimate relation to present day problems. They were written at various times from 1882 to 1907, and deal with the problems confronting the English Government.

The first eleven essays are a product of the liberal thought which had its greatest strength in the early eighties. The ills of present day world politics are traced back to the imperialistic policy first given form under the "sinister genius" of Prince Bismarck. Germany is the disturber of Europe. Her ambitions force the other nations into a mad race for military power and oversea possessions. Financial interests are emphasized to the sacrifice of humanity. The progress of this policy England could have checked had she interposed in the war of 1870-1. Her supineness at that time has led her later to fall into her ventures in Egypt, South Africa and India. Once the greatest national state in Europe she has become an empire which is a conglomerate of creeds, races and governments. The continuance of the present plan of empire building means the ruin of the old England and does not tend to the solution of the problems of the countries absorbed. The author aims to appeal "to international morality" to check the race for bigness rather than strength.

In Part II the author turns to the disturbing elements in the national life at home. The laboring classes he holds must be given a fairer chance. A social revolution only can give them justice. But the schemes of socialistic

reformers are hollow and inadequate. The arguments used against the "orthodox economics" of the sixties are reviewed and it is shown that *mutatis mutandis* they apply with equal force to the remedies of socialism. The scheme of Marx, Proudhon and Lassalle is a utopian system which may lead us to disregard the real need—the adjustment of economic conditions to secure justice for labor. Justice should be equalization of opportunity, not equalization of power or reward.

Mr. Harrison's essays are protests against present day conditions. One may not agree with his interpretation, but his presentation of facts is always clear and his logic cogent. No one can read this book without a shaking up of many "well-accepted" ideas.

Hasbach, W. *A History of the English Agricultural Labourer.* Pp. xvi, 470. Price, 7s. 6d. London: P. S. King & Son, 1908.

Reserved for later notice.

Hilla, A. T. *Commercial Law.* Pp. 308. Price, \$1.00. Cleveland: Practical Text Book Company, 1908.

Hogan, A. E. *Pacific Blockade.* Pp. 180. Price, 6s. Oxford: Clarendon Press, 1908.

Pacific blockade is a means of international coercion short of war which first found use in the nineteenth century. The author by this essay gives short historical sketches of the instances in which it has been used and draws conclusions as to its present status and probable future development. The discussion is based on some twenty conflicts, most of them of lesser importance, some of which lasted but a day or two and others of so transitory a nature that the facts are not definitely known.

Naturally under such circumstances the discussion must be at many points vague, as the author frankly admits. His main conclusions are that pacific blockade will be used more and more in coercing small powers to live up to their international duties. Notice of a contemplated blockade must be given to third states and is usually given to separate vessels before any action is taken other than warning them off. Vessels of the blockaded state, if seized, should be given back at the end of the dispute, except when they are needed to satisfy certain claims, especially those relating to money. The most important question is the treatment to be given vessels of third states. No definite rule can be stated. "At present it is policy and not law which guides third states in their attitude towards a pacific blockade." The belief that pacific blockade will be extended to third states' shipping is expressed. This would certainly be strongly opposed by some states at present. The protest of the United States against extension of the blockade to third states' vessels in the Venezuela blockade, 1902-3, shows that the author's thesis on this point is dissented from by one great power at least. The temper of the book is summed up in the sentence, "It is certainly desirable in the interests of peace that states should not be prevented from making use of this method of settling international difficulties." No discussion of the probable effect of the Hague conventions on the development of the doctrine of pacific blockade is given.

Hoyt, Charles O. *Studies in the History of Modern Education.* Pp. 223.

Price, \$1.50. New York: Silver, Burdett & Co., 1908.

Reserved for later notice.

Jones, John P. *India: Its Life and Thought.* Pp. xvi, 448. Price, \$2.50.

New York: Macmillan Company, 1908.

Reserved for later notice.

Kirkup, Thomas. *A Primer of Socialism.* Pp. 90. Price, 40 cents. New

York: Macmillan Company, 1908.

An analysis of the Socialist movement, principally historical, is presented in an elementary, clear manner. The book follows closely the lines of "The History of Socialism" by the same author. The work is up-to-date, containing discussions of prevalent types of Socialism and the action of Socialistic parties. It should prove valuable to the reader with little time at his disposal, but will scarcely win the uninitiated to the Socialistic viewpoint.

Labor Laws of the United States. Twenty-second Annual Report of the Commissioner of Labor. Pp. 1562. Washington: Government Printing Office, 1908.

de Launay, L. *The World's Gold.* Translated by O. Williams. Pp.

xxxii, 242. Price, \$1.75. New York: G. P. Putnam's Sons, 1908.

In an introduction to this English version, Mr. Charles A. Conant discusses briefly some of the financial aspects associated with the question of the gold supply. The book itself is divided into four long chapters, under the following heads: (1) The Geology of Gold; (2) The Geographical Distribution of Gold in the Past and Present; (3) The Extraction and Dressing of Gold; and (4) The Economy of Gold.

In discussing the geology of gold the author goes quite exhaustively into the formation and nature of the various auriferous deposits. One significant point brought out in this connection is that the distinction between ore and barren rock is purely industrial, and that relatively poor ores are steadily growing in importance. The second chapter is devoted mainly to a survey of gold production at different times in the several continents of the world, making special emphasis of the present day importance of the Transvaal, United States and Australia. Chapter three is essentially a more or less technical discussion of extractive processes, describing the different steps with a considerable degree of detail. If the text were supplemented by a few diagrams the lay reader would be greatly aided in this chapter and also in chapter one.

The final chapter includes about one-third the volume, and is divided about equally between the question of gold as a medium or standard of exchange and the factors underlying the evolution of the modern gold industry. As regards the future, the author sees no cause for apprehension on the score of shortage of gold, but he does maintain that within a comparatively short time much of the supply must come from lower grade ores than those now utilized.

Lavisse, E. *Histoire de France depuis les Origines jusqu'à la Révolution.* Tome Huitième, Vol. I. Pp. 484. Louis XIV. La fin du règne (1685-1715), par A. de Saint-Léger, A. Rébelliau, P. Sagnac et E. Lavisse. Paris: Hachette et Cie, 1908.

In this volume of M. Lavisse's great work on the history of France, we have the history of the later years of Louis XIV's reign. M. de Saint-Léger treats the foreign affairs of the period, M. Sagnac the economic conditions, M. Rébelliau religious affairs and the progress of thought, and M. Lavisse himself the king, court and social life. To readers of *THE ANNALS*, the very able treatment by M. Sagnac in Book IV of social and economic conditions will be of especial interest. The first chapter deals with the causes of decline in the economic activities of France during the period. Among these the wars and the revocation of the Edict of Nantes are given as accidental, while the financial and economic policies of the government are regarded as permanent and fundamental. Thus "La système colbertiste, exagéré par les successeurs de Colbert, aggravé par les guerres, fut la principale cause de la décadence de notre activité économique" (p. 208). The second chapter is a study of agriculture and the peasantry, the third of industry and the fourth of "*Le Grand Commerce et les Colonies*." While the work is throughout very well documented, the bibliographical notes (pp. 201-212), drawn upon for the chapter on economic conditions furnish particularly valuable material for the history of a subject hitherto too little studied.

Letters from a Workingman, by an American Mechanic. Pp. 191. Price, \$1.00. New York: F. H. Revell Company, 1908.

An unknown author, at one time an American mechanic, presents in the form of letters, written to a fellow mechanic, a series of statements regarding the attitude of the American skilled workman toward the problems which he is daily required to face. He goes to New York, secures work in a machine shop, describes the pace setting, piece-work system, a strike, the settlement of a strike, his discharge, the search for work and his final settling down in New York again after having turned tramp for a considerable time. The style is vivid and picturesque and at times the subject matter shows a remarkably intimate knowledge of the conditions under which the skilled workman of to-day lives. The author has used this scheme as a vehicle for presenting to the public in a most favorable light the cause of the American workman. The problems are fairly stated, and the conclusions are both conservative and rational.

Lucas, C. P. *A Historical Geography of the British Colonies.* Vol. V, Parts I and II. *Canada.* Pp. 729. Oxford: The Clarendon Press, 1908. Reserved for later notice.

MacCorkle, W. A. *Some Southern Questions.* Pp. vii, 318. Price, \$1.50. New York: G. P. Putnam's Sons, 1908.

The author, late Governor of West Virginia, has gathered in this book six addresses delivered before various associations at various times during the last ten years. They are reprinted without change. They deal with "The Negro and the Intelligence and Property Franchises," "The Race Question,"

"The Attitude of the Progressive South," "The Elective Franchise," "Some Tendencies of the Day," "The Patriotism of the South in Reference to the Conditions of the Times."

A man's desire to preserve his own utterances is easily understood. To understand our difficult social and race problems we need careful studies—not after-dinner oratory. This indicates the strength and weakness of the book.

Meredith, H. O. *Pitman's Economic History of England.* Pp. viii, 366.

Price, \$2.00. New York: Isaac Pitman & Sons, 1908.

Reserved for later notice.

Merrick, George B. *Old Times on the Upper Mississippi.* Pp. 323. Price,

\$3.50. Cleveland: A. H. Clark Company, 1909.

Reserved for later notice.

Merrill, Lilburn. *Winning the Boy.* Pp. 160. Price, 75 cents. New York:

F. H. Revell Company, 1908.

The subject matter which the author uses is good. The incidents which he uses are striking and yet because of the crude style and the ineffective method of combining the material, it loses much of its force. The book covers, in a conversational way, the field of probation work as it has developed in Denver. All phases of the delinquent boy's life are discussed and commented upon, no definite conclusion is reached, and the reader does not understand exactly what steps must be taken in winning the boy.^a

Mond, Frank. *The Burden of Woman.* Pp. 230. Price, 1s. 6d. London:

The New Age Press, 1908.

The book is a compilation containing five chapters on various phases of the burden of woman. Some of the material is excellent and some of doubtful value. All of the chapters, however, serve to give a good idea of the woman's viewpoint. The general conclusion reached seems to be that women should be permitted to be more independent of men.

Munro, W. B. *The Government of European Cities.* Pp. ix, 409. Price,

\$2.50. New York: Macmillan Company, 1909.

Reserved for later notice.

Murby, Millicent. *The Common Sense of the Woman Question.* Pp. 57.

Price, 6d. London: The New Age Press, 1908.

This book presents a carefully arranged and logical argument based largely on economic grounds, for the political equality of men and women. The author has made a careful study of the subject and presents a thoroughly scientific and carefully developed plea.

New York, Railroad Laws of. Pp. 365. Albany: Banks & Co., 1908.

New York Society for the Prevention of Cruelty to Children, Thirty-fourth Annual Report of. Pp. 115.

This pamphlet contains the President's annual address, reviewing the society's work and outlining its future prospects. The remaining pages are

^aContributed by Scott Nearing, University of Pennsylvania.

devoted to various reports, including that of the treasurer, a list of typical cases handled by the society and a compilation of international organizations dealing with child protection.

Nitti, F. S. *Catholic Socialism*. Translated by Mary Mackintosh. Pp. xx, 432. Price, \$2.75. New York: Macmillan Company, 1908.

This re-issue of Professor Nitti's standard work is well timed. Catholic and Protestant alike are coming to realize that if religious leaders are to hold their power, they must squarely face the social question. The book itself needs no commendation, having been well known by students for a dozen years. It begins with a brief review of the rise of socialism and the traditional policy of the church in regard to economic affairs, and then takes up the origin and growth of socialistic and social reform ideas among the clergy of Germany, Austria, Switzerland, France, Belgium, England, the United States, Spain and Italy. The concluding chapter discusses the attitude of the Papacy, and the appendices contain the encyclical letters of 1878 and 1891 on labor. The value of the work consists largely in the full account of the writings of such radical Catholic leaders as Von Ketteler, Vogelsang, Decurtins, De Mun and Manning, to mention only a few among many. All is fortified with abundant quotations and references to sources. Of generalization there is little, perhaps too little. The book is one for the student, not the dilettante.

It is a curious mixture of economic radicalism with political and religious conservatism that Professor Nitti pictures. Taking a body of men such as the Roman Catholic clergy, trained in the traditions and doctrines of a splendid past, how far can they adapt themselves and their institution to the new social needs of our day? It is an interesting answer that this book gives, containing every shade of thought from the most orthodox plans of individualistic social reform to thoroughgoing state socialism—but always stopping short of social democracy. The reactionary economic thinking disclosed by the frequent preference for the re-establishment of practically medieval guilds is not altogether surprising.

It is a pity that the work could not have been brought down to date. Things have moved a good deal in fifteen years. The translation is annoyingly bad; at any rate the reader might have been spared the irritation of "democratic socialism" in place of "social democracy," and similar slips.

Overland, M. U. *Classified Corporation Laws of all the States*. Pp. 508. Price, \$4.00. New York: The Ronald Press, 1908.

Out of a mass of detail and a chaotic condition of the laws of all the states relating to the corporation, M. U. Overland, of the New York Bar, has produced in classified form an excellently arranged volume dealing with the general corporation laws of each of the states and territories.

The idea, which has been successfully carried out, has been to present uniformly under well selected and important headings the information contained in the laws of each of the commonwealths and territories. In each case, in addition to the material relating to the respective legal entities created

by the local government, there are also given the provisions controlling and governing foreign corporations.

Especial attention has been paid to the requirements of incorporation, methods of organizing, the corporate powers, regulations as to capital stock and the holders thereof, rights and liabilities of directors and officers, general restrictive legislation, and the nature of the control exercised by the state authorities.

A detailed, exhaustive investigation of the conditions prevailing in each state has been made to make the material easy of access, brief and to the point. Mr. Overland has succeeded admirably in his endeavor to accomplish that for which he is striving, which, as he expresses it, is "to present a clear, concise and conveniently arranged digest of the general corporation laws of each state and territory of the Union."

Pelzer, Louis. *Augustus Caesar Dodge.* Pp. xii, 368. Iowa City: The State Historical Society, 1908.

The makers of the Middle West builded better than they knew. Little known to the world at large, nor destined to be widely honored perhaps, they were men of character whose lives are worth recording. The State Historical Society of Iowa is performing a distinct service in publishing this series of biographies. Mr. Dodge was the first United States Senator from Iowa and later Minister at Madrid.

Quinn, George E. *The Boy-Savers' Guide.* Pp. xxiii, 389. New York: Benzinger Brothers, 1908.

This volume belongs in a series of standard Catholic books, and is a discussion of society work for lads in their teens, written entirely from the standpoint of the church and its propaganda. It deals in detail with the methods of using clubs as an adjunct to church work, and it will accordingly have interest chiefly for the Roman Catholic clergy.

Sabatier, Paul. *Modernism.* Pp. 351. Price, \$1.25. New York: Scribner's Sons, 1908.

Modernism proclaims itself the essence of true Catholicism, but is rejected by the Papacy as the "synthesis of all heresies." In three lectures, originally delivered in London, M. Paul Sabatier aims to explain this contradiction and to give an idea of what the much maligned movement is. The discussion is limited to French and Italian modernism, the branches which have up to the present called forth the sharpest criticism.

Modernism is not a doctrine. It is equally far from a rejection of the Catholic belief as it is from the acceptance of a theology based on science alone. To the Papacy as an institution, it is still loyal, but it holds that authority has overstepped its bounds. The Papacy is not the church, but the agent of the church. Real Catholicism, as represented by the early Church, embodied the essentials of religion, it represented loyalty to a leadership and an ideal not abject submission to any set creed or authority. True religion is a permanent need in man's mind. No discoveries of science can change it. Science and the higher criticism are not the allies of mod-

ernism, but its handmaids. The results of both, the Church should accept as new light, which cannot shake the foundations of belief.

The Papacy is misled by the reactionary party in decrying the movement as uncatholic. It aims to preserve the true Catholicism, to hold fast to the truths of the early Church and to accept the facts of modern life as explaining them, not as changing them. Modernism is an orientation rather than a body of new doctrine. Even such ceremonies as the Mass it would keep unchanged. It represents the traditions of nineteen hundred years, it makes the individual a part of the religious life of all time. But the Mass as a form alone is valueless.

This is the general argument of the book. The last hundred and fifty pages are given over to reprints of various documents chiefly issued by the Pope against modernism. No one can read the book without being impressed with its sincerity and moderation.

Schumpeter, J. *Das Wesen und der Hauptinhalt der Theoretischen National-ökonomie.* Pp. 626. Price, 15 m. Leipzig: Duncker & Humblot, 1908.

Works as comprehensive as this, reviewing the various theories of economics are usually written to advocate some one of them. The author here attempts to give an exposition of the theories advocated by the various schools without intruding his own personality or beliefs into the work. The study is made from the standpoint of statistical economics rather than dynamic economics. For the distinction between these methods, the author gives special credit to American writers. The book falls into five parts: General Considerations, the Problem of Statistical Unit, the Theories of the Division of Income, the Problem of Variation in Economic Quantities, Summary of Theories Discussed. The last chapters are devoted to a discussion of the value and possibilities of theoretical economics. The book is scholarly and easy to read, the argument is clear, though abstract.

Schurz, Carl, *the Reminiscences of.* 3 vols. Pp. xi, 1333. Price, \$6.00. New York: Doubleday, Page & Co., 1909.

Reserved for later notice.

Severy, Melvin L. *Gillette's Industrial Solution: World Corporation.* Pp. 598. Price, \$1.50. Boston: Ball Publishing Company, 1908.

Spears, John R. *The Story of the New England Whalers.* Pp. 418. Price, \$1.50. New York: Macmillan Company, 1908.

As the title suggests, Mr. Spears' book gives more space to stories of the men who were engaged in whale fishing than to a history of the industry. The book, however, contains in parts enough historical matter to make it worth while for the historian and the economist. The author is a good story teller and gives a vivid picture of the dangers and fascinations of the life of the men in the whaling fleet.

Steiner, E. A. *Tolstoy: The Man and His Message.* Pp. 353. Price, \$1.50. New York: F. H. Revell Company, 1908.

Reserved for later notice.

Towles, J. K. *Factory Legislation of Rhode Island.* Pp. vi, 119. Price, \$1.00. Princeton: American Economic Association, 1908.

Massachusetts, New York, Pennsylvania, Connecticut, Maine and now Rhode Island—with New Jersey and other commonwealths on the way—this field of social legislation can hardly be called an unexplored one as it was only a decade ago.

Dr. Towles discusses his subject under the four general headings of Child Labor, Hours of Labor, Factory Acts, Fire Escapes and Elevators, treating each topic both historically and administratively, and concluding with a chapter on the Bureau of Industrial Statistics, of which he feels obliged to speak disparagingly, as hardly "worth its cost to the state." As to enforcement of the various provisions of the Factory Code the usual variation, from good to bad, is observable. One gains additional confidence in the author's conclusions, and in his suggestions for improvement, from the first-hand knowledge obtained by him through actual employment in various factories of the state.

The work is well done, and gives renewed emphasis to the importance of the investigations which the Carnegie Institution is making possible.

Webb, Sidney, and Beatrice. *Minority Report of the Poor Law Commission.* 2 vols. Pp. xxxv, 946. Price, \$4.25. New York: Longmans, Green & Co.

Reserved for later notice.

Weller, Charles F. *Neglected Neighbors.* Pp. xi, 342. Price, \$1.50. Philadelphia: The John C. Winston Company, 1909.

Reserved for later notice.

Wilfling, A. *Der Administrative Waffengebranch der Offentlichen Wachorgane unde des Heeres.* Pp. 282. Price, 8 m. Leipzig: F. Deuticke, 1909.

Yearbook of Legislation. 1907. Pp. 1046. Price, \$1.00. Albany: University of the State of New York, 1908.

REVIEWS.

Blair, Emma H., and Robertson, James A. (Editors). *The Philippine Islands, 1493-1898.* 55 volumes, averaging over 320 pages each. Price, \$4.00 each. Cleveland: The Arthur H. Clarke Company, 1903-1908.

Only the last two volumes, which are to be devoted to an analytical index, have yet to appear to complete this great work. It has been going quietly forward during the past six years, receiving far less attention than is due its importance as an undertaking in American scholarship. It is beyond all comparison the greatest contribution to knowledge in its field.

The series was projected within the first few years following our occupation of the Philippines. This explains the ambitious scope of the plan. The publishers soon learned that there was not enough interest in the Philippines to sustain a work of fifty-five volumes. Yet they have carried the work to completion, despite a financial loss. If they are entitled to praise

therefor, what shall be said of the devotion manifested by the editors, who have stood by their task under the most discouraging conditions, shouldering finally all the burden of the routine work, translations, etc., and at the same time steadily improving the character of their editorial work as volume succeeded volume?

As a matter of fact, they themselves could have done better with a series of twelve to fifteen volumes of carefully selected Philippine documents and editorial abstracts—an undertaking, moreover, which would have obtained adequate financial support. As the Philippine Islands loom upon the world's horizon to-day, or even as they appear in the political perspective of the United States alone, fifty-five volumes of translations and reprints bearing on their history are too many to find an adequate sale, even if such a collection were final and authoritative; but it is also too early for any complete, authoritative selection of Philippine documents. The archives of Manila have not yet been indexed; new material has recently come to light in Mexico; and, while the archives in Spain, especially those in Seville which chiefly have been drawn upon for the series, have been searched considerably for Philippine documents, there has been as yet no thorough and systematic canvass even in Spain. Mr. Robertson's *Bibliography of the Philippine Islands*, which constitutes volume 53 of this series, and has also been issued separately, is devoted particularly to the listing of Philippine manuscripts, and it brings out very well the extent of this field as well as the yet incomplete work done therein.

Of new documents brought to light for this series, perhaps the most valuable are a number bearing on trade and economic and administrative matters in the seventeenth and eighteenth centuries, among which may be included several notable pamphlets printed at the time for circulation at the Court of Spain, but which had fallen into oblivion and are here produced as virtually new contributions to Philippine history. Various new documents were printed in the early volumes bearing on Magellan's and the other voyages of discovery, Legaspi's conquest and settlement, the establishment of Spanish administration in the Philippines, efforts at conquest and missionary work in the neighboring countries, and also, of course, numerous new relations of missionary work and of religious and ecclesiastical matters. The previously published Spanish collections of documents and the old Philippine histories had all centered about the matters just mentioned. The most valuable manuscripts of the work here reviewed are those which shed light for us on the dark *lacunae* of Philippine history, the neglected regions of socio-economic and economico-administrative matters. Philippine history has not yet been written at all, in the modern sense; and it will not be written until these regions have been explored. Therefore, though thankful for much that the editors of this series have done for us in this respect, we could wish they had neglected more the usually barren (historically) and oftentimes tedious stretches of missionary relations in favor of a still more thorough exploration of social, economic and administrative matters.

Not the least valuable feature of this work has been the reprinting,

in complete translations or in abstracts, of various of the more valuable old works on the Philippines which are to-day inaccessible or practically so. A most complete edition of Pigafetta's relation of the Magellan voyage and Morga's history of the Philippines to 1606, both of which have been issued as separates, are especially to be mentioned. The chapters on the Philippines and Chinese trade among them by Chao-Yu-Kua, a Chinese geographer of the thirteenth century, are reproduced in translation in volume 34. Father Plasencia's relation of native customs is, along with Morga, an indispensable source of information regarding the primitive Filipinos. We have also in this series an English rendering of the history of Father Chirino (1604), second only to the preceding as an early source. Aduarte, Colín, Combes and the other missionary historians are also drawn upon for lengthy selections or abstracts, while the later historians, Concepción, Delgado, Zúñiga and Montero y Vidal have been in constant requisition for like purposes and for annotations and comparisons. Foreign writers have also been drawn upon, notably the voyagers Dampier and LeGentil and the nineteenth-century travelers, Mallat and Jagor, as well as two keen Spanish observers of the last century, Comyn and Mas.

The work was originally planned to extend only to 1800; this fact and the curtailment of expenditures thereon have led to condensation of the last century of Spanish rule into two volumes, as well as correspondingly curt treatment of the important events of the last part of the eighteenth century. One volume is devoted to the capture and occupation of Manila by the British, 1762-1765, and the succeeding volume (the 50th) rather summarily treats the questions of secularization of parishes and episcopal visitation under Governor Anda and Archbishop Santa Justa y Rufina (opponents of the friars), the expulsion of the Jesuits, and the notable administration of Governor Basco y Vargas. In the condensation here and in volumes 51 and 52, which bring the story down to April, 1898, abstracts from Montero y Vidal, good annotations, and some preceding editorial appendices covering the entire period of Spanish rule under special heads (as, *e. g.*, education) help out greatly. There is also in volume 52 an attempt to develop the principal features of the closing period of Spanish rule, 1860-1898, and to furnish a working bibliography for the study of this period and of the rise of the incipient "Filipino nation," prepared by the writer of this review.

The *Bibliography* (volume 53), mentioned above, besides its pioneer work in listing Philippine manuscripts, is quite indispensable to librarian or special student as "pointing out the sources for a complete bibliographical study of the Philippines," and as bringing together a variety of data in the field not elsewhere obtainable except in scattered works and in fragmentary form.

Fort Bayard, N. M.

JAMES A. LEROY.*

*Since writing this review the writer has suddenly died. Mr. James A. LeRoy was an active and enthusiastic student of the Philippine Islands. He was secretary of the first Philippine Commission, and while in the Philippines wrote a volume entitled "Philippine Life in Town and Country." The Academy regrets the loss of so valuable a member.

Butterfield, K. L. *Chapters in Rural Progress*. Pp. ix, 251. Chicago: University of Chicago Press, 1908.

In the words of the author, "the rural problem is the problem of those who farm. It is the problem of the man behind the plow . . . a man very much like other people. Farmer nature is usually a fair specimen of human nature." Nevertheless, the farmer's physical and social isolation gives to the rural social problem a unique character. "Farm life makes a strong individual; it is a serious menace to the achievement of class power." Since "present day living is so distinctively social, progress is so dependent upon social agencies, social development is so rapid, that if the farmer is to keep his status he must be fully in step with the rest of the army."

In the seventeen discourses contained in this volume, the author points out the necessity of the farmer's acquiring the social point of view before he can be ready to accept any scheme for his industrial, intellectual and social uplift. The first and greatest needs of the farmer are found to be: (1) *Completer organization*; co-operation is a difficult lesson for the farmer; (2) *Better education*. As president of the Massachusetts Agricultural College, the author is particularly qualified to speak *ex cathedra* on this matter. He says that the country is especially lacking in and greatly in need of good high schools, of technical training, too, in spite of forty years of agricultural colleges. "Neither in primary grades, in high schools, nor in special schools, is there an adequate amount of study of the principles of agriculture—principles which an age of science demands must be mastered if the independent farmer is to be a success." (3) *Quicker communication*. Of course, the progress made along this line in the interest of the farmer has been so phenomenal in the past few years—with free rural delivery and a metropolitan daily at his breakfast table, a telephone at hand, improved roads and electric trains—we cannot help asking the author if he feels that the farmer has kept pace with this particular opportunity?

We are glad to turn to the chapter that contains a thrilling story of the farmer's co-operation with the school teachers of Michigan in building up in the "Hesperia movement" a common platform for the discussion of their mutual interests. The last chapter of the book contains the author's plan for the solution of the rural problem. His idea is to federate the forces that are already operating. These forces are, assuming the home life, the church, the school and the farmers' organizations. Each of these institutions is as important, as necessary as the other, and with the agricultural college in each state taking the lead in the work of federation, the author not only feels assured of success, but also gives instances of results that have already been obtained.

ISABEL DANGAIX ALLEN.

New York City.

Cambridge Modern History. Volume V. *The Age of Louis XIV*. Pp. xxxii, 971. Price, \$4.00. New York: Macmillan Company, 1908.

The title of this volume, "The Age of Louis XIV," has become a traditional
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phrase applied to the period corresponding closely in point of time with the reign of the *Grand Monarch*. Not so much because Louis XIV dominated and directed the activities of the period, as did Napoleon later, but because he was the most conspicuous character of the half century following the death of Mazarin, and carried to its highest development the type of personal government and administration so conspicuously the most striking characteristic of the age. To the establishment and maintenance of this system the monarchs of the latter half of the seventeenth and the early part of the eighteenth century directed all their energy and resources. Both in the domestic and foreign affairs of Europe, this period takes its tone from Versailles; everywhere there is the conscious imitation of the court and politics of the *Roi Soleil*, and this very properly receives recognition in the title of the volume before us. It is well that this is so, for the fact is rather conspicuous by the lack of recognition it receives in the contents. Of the space allotted to the different countries, France gets 91 pages, Great Britain 247, Eastern Europe 208. From the point of view of the contents it would have been wiser to have followed the original announcement and adhered to the title *Bourbons and Stuarts*. Nor can it be said in extenuation of the disproportionate emphasis upon British history that this subject received rather scanty consideration in the two preceding volumes.

Looking at the work as a whole, this volume of the Cambridge Modern History illustrates to an unusual degree both the evils and the advantages of the co-operative method of writing history. It lacks continuity and that sustained interest which attracts the average reader. Much of it is by nature too repellent in form and manner; detail upon detail with no attempt at generalization or interpretation. Nor does it satisfy the scholar and the specialist who invariably want greater detail and more documentation. Were this an historical journal, it would be interesting to make a comparison between this volume, and the volumes relating to Louis XIV, in the *Histoire de France*, by M. Lavissee. The latter work devotes three volumes of about 500 pages each to the reign of Louis XIV. Instead of twenty-five authors the French volumes are the work of one, two, or, as in the case of the volume on the end of the reign which has just appeared, of four writers. But the editor, M. Lavissee and his few collaborators, are specialists in the history of the fields they treat, which is more than can be said of quite a few of the twenty-five contributors to the Cambridge volume. The result is not only a greater work, but also a much larger degree of uniformity in the presentation. In reading the French work, one is conscious of a unity of purpose and design which is conspicuous by its absence in the English volume.

On the other hand, this volume of the Cambridge History gives us a good deal of history of a very high order. There is an excellent chapter by Professor Firth on *The Stuart Restoration*, continued for the domestic affairs of England by Pollock on *The Policy of Charles II and James II*, and by Temperley of Peterhouse in two chapters, one on *The Revolution and its Settlement* and the other on *The Government under Queen Anne*. Professor Bury's contribution on Russia, tracing the history from the beginning at Moscow to the death of Theodore, and Bain's continuation of

the account to 1730 in the chapter on *Peter the Great and His People* deserve special notice. The senior editor, Mr. Ward, gives a good survey of Prussian history from the origin of the mark of Brandenburg to the death of Frederick I, the first king of Prussia. The treatment of the great elector's policies, with respect to cultivation, industry, immigration and toleration will be especially interesting to readers of *THE ANNALS*. Unfortunately, clear presentation of the larger economic problems of the period is not a conspicuous feature of the book. In the section on France one misses in Mr. Grant's account of the government of Louis XIV, the searching analysis found in the first volume of Lavissee's *History of Louis XIV* on the economic conditions that underlie the position of the Huguenots. In Mr. Hassall's account of the foreign policy, we are repelled by an array of dates; seventeen, occasionally even twenty, dates to a page approximates the achievement of the last edition of Ploetz's *Epitome*.

The bibliographies are uniform in form and matter with those of previous volumes of this series; there are valuable lists of primary and secondary sources for each chapter with date of editions and publisher, but there is no attempt at critical evolution.

W. E. LINGELBACH.

University of Pennsylvania.

Gray, B. Kirkman. *Philanthropy and the State*. Pp. x, 339. Price, 7s., 6d. London: P. S. King & Son, 1908.

Few more readable volumes on social problems have come to the reviewer's notice than this, a posthumous work, edited by Miss A. L. Hutchins and the wife of the author. It is to be regretted that the author could not have lived to complete the work, for much of this book is fragmentary—a mere skeleton of the topics intended for further discussion.

A wide range of subjects is treated. Part I, called the "Transition in Thought," is an interesting resumé of the developments of the nineteenth century in the realm of philanthropy in England. The relation of the philanthropist to political measures; the new problems of city life; the administration of the poor law; the development of the charity organization society are typical chapter heads.

The keynote is the author's belief that, "philanthropy cannot remain a private concern"; that the "necessary provision for the weaker classes is a social concern . . . the state should consider the remedy (and in some form or other) should control its application." Few would to-day criticize such a position in the abstract, all depends on the measures proposed. The author sharply criticizes the English charity organization society for its failure to do constructive work. His criticism may or may not be well-taken, but such a charge could not justly be brought against the leading societies in this country.

In Part II, "The Intervention of The State," the author points out various activities undertaken by the state in England. The insane, prisoner's aid

movements, juvenile offenders, reformatories, inebriate homes, hospitals, tuberculosis, public health, widows, children, the aged are all considered. The history of the movement to care for these various classes is given. This section will be of great value to those who wish to understand the drift of things in England.

In an appendix the value of social agitation is considered and the different types of agitators described.

No one will agree with all the author's ideas. There is a charm about the style, a freshness in presentation of topics that constantly holds the attention of the reader, no matter whether it is the old problem of volunteers, the professional or the work of the board of health which is under discussion. Many old fallacies are exposed, as, for instance, the "lingering belief that anything called charitable or religious is of private *concern* and not rightly *subject* to the control of the state."

The book is to be highly commended to all who wish to know recent developments in English philanthropy.

CARL KELSEY.

University of Pennsylvania.

Gulick, L. H., and Ayres, L. P. *Medical Inspection of Schools*. Pp. x, 276. Price, \$1.00. New York: Charities Publication Committee, 1908.

By making available in this volume their almost unlimited resources of information upon medical inspection in schools, the authors have conferred a great benefit upon those who desire to look into the literature of the subject. The introduction states that the work is one of the by-products of the "Backward Children Investigation," supported by the Russell Sage Foundation. "In the course of this investigation it has been found necessary to accumulate information as to what was being done for the health of children, from both the pedagogical and medical standpoints, in the chief cities and countries of the world."

The ideal given is based on a statement taken from a memorandum of the British Board of Education, which states that medical inspection "is founded on a recognition of the close connection which exists between the physical and mental condition of the children and the whole process of education." With this in mind a clear distinction is made between "medical inspection solely for the detection of communicable disease and that physical examination which aims to discover defects, diseases and physical condition." This leads to the question whether the inspection should be administered under the municipal department of health, or under the board of education; the former being primarily interested in the detection of communicable diseases and the latter in "securing and maintaining the health and vitality of the child." Though the viewpoint of Superintendent Maxwell, in his report for 1907, that "the physicians employed by the board of health do not perform any of the functions which it is highly advisable should be performed by

(731)

a truly educational department of hygiene," is stated at length, and little is said in favor of such inspection, the problem is left unsolved.

The early chapters devoted to the *Nature and Aims of Inspection*, the *Argument* in its favor, and the *History* of the movement are clear and most enlightening; but in the later chapters on *Controlling Authorities* and *Retardation and Physical Defects*, though the authors have made a careful attempt to analyze conditions, the incompleteness of the data obtainable makes the conclusions much less convincing. In reproducing instructions to teachers, regulations governing various school systems in regard to exclusions, forms for reports of teachers and inspectors, etc., the volume supplies an immediate, urgent need. The carefully selected bibliography of some 275 titles will be a material aid. On the whole, this volume not only makes it clear that America is behind Europe in safeguarding the physical health and vigor of the pupils in its schools, but will go far toward remedying that defect.

JAMES S. HIATT.

Philadelphia.

Haney, Lewis H. *A Congressional History of Railways in The United States.* Vol. I. Pp. 274. Madison, Wis.: Democrat Printing Co., 1908.

As is suggested by the title, this carefully prepared work by Dr. Haney has a twofold purpose. It brings out the main facts of railway development as shown in the congressional documents of the time, and points out in detail the various ways in which Congress was a factor in that development. The work is chiefly the result of a systematic study of the files of the House and Senate *Journals*, the numerous reports made to Congress, the *Debates of Congress*, *Executive Documents*, and *The Congressional Globe* from the beginning of active agitation for improved transportation to 1850.

In the first book the author discusses the rise of the railway question. Before the success of the railroad had been demonstrated, the Government had aided in the improvement of roads and the building of canals, and Dr. Haney presents many interesting facts as to the Road *vs.* the Railway and the Canal *vs.* the Railway. If there is any adverse criticism, it is that he presents his facts as though they cover the entire field, while in reality they are complete only in so far as the railway question appeared in Congress.

When once the technical success of the railroad was assured, the railways demanded aid from Congress, just as the canal companies had done and were still doing. This question is covered in the second book, and constitutes the most valuable part of the entire volume. The congressional documents, debates and reports constitute a complete source of information as to federal aid, and in making a careful study of them the author was in a position to treat this subject authoritatively. Each of the various forms of federal aid—Government surveys, monetary aid, drawbacks on railway iron, the mail service, grants of rights of way through public lands and federal land grants—in so far as they appear from 1824 to 1850, are analyzed.

State and local aid are not discussed, but they were not a part of the author's subject.

The final book treats of the transcontinental lines. It is valuable in so far as it traces out the various early projects which were proposed, and the gradual growth of the idea. But since the actual work of construction did not begin until later, the scope of the author's work is limited.

The volume as a whole indicates a large amount of systematic work, and though its scope is chiefly limited to congressional activity, it is a valuable contribution to the early periods of railway history.

GROVER G. HUEBNER.

University of Pennsylvania.

Hirth, F. *The Ancient History of China to the end of the Chóu Dynasty.*

Pp. xiii, 383. Price, \$2.50. New York: Columbia University Press, 1908.

"No other people in the world is so closely connected with its ancient history as the Chinese, and of this the earliest part, with their classical Chóu dynasty, the constitutional period of all Chinese culture, has created standards which have become dominant in all development down to our own times, not only in China herself, but to a certain extent throughout the Far East, especially in Korea and Japan." (p. viii). This is sufficient justification for the appearance of a volume covering the history of this period. The difficulties of such a history are not to be underestimated. In view of the character of the literary sources—(aetiological myths, "model Emperor lore," deliberate inventions and forgeries, the creation of an "official version" by the court historians and philosopher-statesmen)—and because of the comparatively small amount of archæological and epigraphic evidence to supplement and correct the literary records, Professor Hirth's scepticism with regard to early Chinese history is natural, reasonable and necessary.

On the question of Chinese origins Professor Hirth is an avowed agnostic. In the absence of all native traditions, written or unwritten, of foreign origin and on philological grounds, he questions De Lacouperie's theory of the western origin of early Chinese civilization and thinks it "hopeless to attempt to explain the several cultural developments ascribed to the Emperor Huang-ti, as offshoots of Babylonian civilization" (p. 14). While both possible and plausible on geographic grounds, von Richthofen's view that the oasis of Khotan in the southwest of eastern Turkestan is the cradle of the Chinese race is to be regarded as equally untenable in view of recent archæological discoveries and of the character of the literary evidence (p. 18f).

In the vexed question of early Chinese chronology, Hirth agrees with Chavannes that it is not until the end of the twelfth century B. C. that we are on firm ground historically. In his brief survey of Chinese history from its beginnings to the ascendancy of Ts' in 221 B. C., he rapidly passes over the mythological and legendary period, making no attempt at accurate

chronology. He regards the legendary Emperors "as nothing more than the symbols of the earliest development of Chinese civilization."

The history of the Shang, or Yin dynasty—"the semi-historical period of Chinese history"—is for the most part merely a series of names. Politically, the important factor is the steady growth in power of the house of Chóu, due to the weakness and corruption of the central government and the exposed position to the dukes of Chóu, for generations the national champions against the Huns.

The remaining five chapters are devoted to the history of the Chóu dynasty. Chapter V deals particularly with the great work of Chóu-Kung, the reputed author of the Chóu-li. "As an educator of the nation, the Chóu-li has probably not its like among the literatures of the world, not excepting even the Bible. This remark refers especially to its minute details of public and social life, in which respect its influence on the character of the Chinese has been fully equal to that exercised by the teaching of Confucius in regard to morals" (p. 108). The chapter also contains an excellent sketch of the administration and government, the social classes, the religion and the life of the period, and emphasizes particularly the important rôle of the people in the administration of justice.

With the beginning of the ninth century there is a gradual decline of the central power. With the removal of the capital to the east in the reign of Ping-Wang (770-720 B. C.) the decline and disintegration of the Empire goes on apace. Characteristic of this period is the rise of the great frontier states ("the Century of the Five Leaders"), especially of the state of Ts' I, due to the wise policy and economic reforms (especially the institution of salt and iron monopolies) of the philosopher Kuan-tzi. In the midst of this period of confusion and turmoil falls the career of Lau-Tzi and of Confucius, "those two great men who have become the representative types of the development of Chinese spiritual life." Hirth rightly calls attention to the fact that in the main Confucius "merely voiced views held long before him, and that the life of the nation, as far back as history goes, can in a certain sense be looked upon as retrospective Confucianism."

The period of the contending states is the record of two centuries of chronic misgovernment, internal warfare between vassal states, palace revolutions and frontier struggles with the barbarians—all of them undermining the central power, which is gradually forced to recognize the majority of the one-time vassal states as "kingdoms." Out of and through it all there is to be traced the gradual rise and ascendancy of the state of Ts'in, delayed for a time by the confederation of "the Six States" (333 B. C.), and by the efforts of the "Four Nobles," but ending in the overthrow of the Chóu dynasty and the final triumph of Ts'in over all its rivals.

Hirth justly emphasizes two important features of the Chóu period. First of all, the growing influence of foreign elements. While on the one hand the great frontier states were afforded the opportunity for the extension of the borders at the expense of the Huns and Man barbarians, whose aid they enlisted against the central government, there is to be noted on the other, particularly from the fifth century onwards, the beginning of "that

important change in life, which became dominant in the age of Ts'in Shihang-ti; namely, a Tartarized China, the traditional Confucian views of life having been supplanted by Tartar, Scythian, Hunnic or Turkish elements—elements that, whatever name we may give them, had grown out of the national life of central Asiatic foreigners, and now began to disturb the quiet development of the nation whose civil code was the *Ch'ou-li*, and whose model gentleman had been Confucius." Many changes combined to undermine "that authority of Confucian teaching, which, after all, must be considered as the cement, so to speak, that had so far prevented the utter collapse of the Ch'ou dynasty." (p. 305.) Yet, as Hirth so excellently remarks, nowhere did the application of scholarship to the affairs of government bear so much practical fruit as in China.

Scattered throughout the book are excellent sections on the culture of the different periods, the geography of China, the origin of the mariner's compass, a discussion of the theories of land holding. There is a brief introduction on the spelling and pronunciation of Chinese words, an abundance of illustrative material from sources, an appendix of chronological tables, a sketch map of China during the Ch'ou dynasty, and a very complete index.

The arrangement and order might occasionally be criticised, and a separate chapter on the sources would have saved some confusion. Moreover, there are frequent and gross lapses in English grammar, in the first half of the book particularly, and the use of colloquialisms is an unfortunate reminder of the lecture origin of the book. Such a sentence as "The female clearly takes a back seat in nature" (p. 59) is unpardonable. But taken as a whole, Professor Hirth, in giving us this "text book for students and work of reference for general readers," has performed a difficult task remarkably well.

R. F. SCHOLZ.

University of California.

Huntington, Ellsworth. *The Pulse of Asia.* Pp. xix, 415. Price, \$3.50. Boston: Houghton-Mifflin Co.

This is a book for the economist, the geographer and the historian, who is too often but a cataloguer of symptoms.

The economic interpretation of history has made great strides of late years and now a great explorer leaves his camels in the midst of the world's greatest desert to call our attention to the fact that probably the greatest of all dynamos back of historic change during the period of the Christian Era has been climatic variation, something of which we have of late only begun to realize the existence, and concerning which our knowledge is yet in its dawn. It is certainly a field well worth the very careful study of individual explorers and especially of such institutions as the Carnegie Institution, and governments. With a combination of a wide study of documents and much original information, gathered by years of journeyings in unexplored Asia, Dr. Huntington opens up a very fascinating field.

He gives much concrete evidence to prove the great changes that

have occurred throughout Asia and presumably throughout the world in historic time and then in the following words shows how all civilization has been overturned by it:—

"If the rainfall (of then populous central Asia) fell from twenty inches to ten, the number of sheep would decrease from sixty to one. Manifestly, if such a change took place in the course of a few hundred years, most of the inhabitants would be obliged to migrate. As the nomads pressed outward from the drier central regions of Asia, we can imagine how they were obliged to fight with the neighboring tribes whom they tried to dispossess. The old inhabitants and the newcomers could not all live together; new migrations would be a necessity; and confusion would spread in every direction. Meanwhile, Europe, after its long period of blighting cold, was becoming warm and habitable, and the migrants pressed into it, horde after horde. No one tribe could stay long in its chosen abiding place, for new bands of restless nomads pressed upon it. Rome fell before the wanderers. Nothing could stay their progress until the turn of the tide.

"Perchance, though this is only vague conjecture, the legends of King Arthur and his knights bear a hint of what might have occurred all over Central Europe if it had not been for the influx of barbarians. England, in its remote corner of Europe, far from the dry plains of Asia, responded at first to the influence of improved climatic conditions, until it, too, was reached by the migrating hordes of invaders."

We are all accustomed to hearing and accepting without remark the statement that man is the result of his environment. Dr. Huntington discusses in a very specific way how certain types of environment produce a man of certain qualities other than physical.

Particularly interesting, because it suggests a possible key to the future, is the theory that man can reach efficient civilization only in a certain type of climate, and further that due to climatic change, the places having that climate have changed latitude and with these changes the course of empire has moved not east and west, but north and south.

"To-day the strongest nations of the world live where the climatic conditions are most propitious. Japan and north China in Asia; Russia, Austria, Germany, France and England in Europe, and the United States and Canada in America, all occupy regions where the climate is of the kind which we have defined as most favorable to the progress of mankind. Much as these nations differ in race, in ideals, and in type of civilization, they all agree in possessing a high degree of will-power and energy, and a capacity for making progress and for dominating other races. Throughout the course of history, similar conditions of climate seem to have prevailed wherever a nation has displayed these qualities. With every throb of the climatic pulse which we have felt in Central Asia, the centre of civilization has moved this way or that. Each throb has sent pain and decay to the lands whose day was done, life and vigor to those whose day was yet to be."

J. RUSSELL SMITH.

University of Pennsylvania.

Meade, E. S. *The Story of Gold.* Pp. xv, 206. Price, 75 cents. New York: D. Appleton & Co., 1908.

Through all history gold has held a place more prominent than that of any other product of the earth. As the underlying reason for many voyages of exploration and discovery, as the impelling motive in the founding of colonies or waging wars of conquest, gold has played a significant role. At present, no less than in the past, the spell of gold possesses men's souls. The seeker after the mythical El Dorado four centuries ago is in spirit the brother of the "Forty-niner" or the "Klondiker." To-day the whole fabric of our complex industrial organization depends on the supply of this same noble metal. It is inevitable, therefore, that the story of gold should have a popular interest which few other stories can claim.

This volume outlines the development of the modern gold mining industry, paying especial attention to the close connection between its development and the every day world of business. In the first part four short chapters outline the importance of the subject, the occurrence of gold in nature and the methods of extraction. The rest of the book is devoted to the discussion of the gold supply and its relation to prosperity, the development of the industry during the last sixty years, especially in the United States, Australia and the Transvaal; the improvements on the technical side of the industry and the future of gold production. An appendix by John C. Duncan summarizes clearly the rather complex provisions of the chief mining laws in this country.

It is perhaps to be regretted that there is not more of the romantic side of the story told here, emphasizing more fully the power of gold in luring man to new lands and tempting him to face almost certain death in the hope of making a "lucky strike." It is evident, however, that the demands of space have prevented further elaboration of this phase of the subject beyond the mention accorded it in connection with a few of the most important gold discoveries.

The book is decidedly readable and most admirably suited to give the ordinary individual a sense of actual personal acquaintance with the gold industry. To the multitude, for whom mining stocks are irresistibly tempting, it is to be most strongly recommended as a book of useful information, interestingly written, and certain to prove a profitable investment.

WALTER S. TOWER.

University of Pennsylvania.

Osborn, Herbert. *Economic Zoology.* Pp. xv, 490. New York: Macmillan Company, 1908.

This somewhat radical departure from the usual texts on zoology makes another step forward in the tendency to treat scientific knowledge from the economic standpoint. In plan the book is not unlike many other texts on zoology. The accepted order of systematic classification is adopted, the book beginning with the protozoa and concluding with the mammals, con-

sidering in each case the various classes, families and usually some particular species of important genera as an example. By giving much more than the usual amount of space to the consideration of the economic phases of the subject, however, Professor Osborn has ignored all precedent. But in doing so he has done no violence to zoology as a science.

On the contrary, a careful inspection of the volume bears out the author's prefatory contention that a large degree of interest is awakened by revealing the fact of importance to human life. For example, the group of protozoans are, as a rule, uninteresting to the average student of zoology who sees one or two under a microscope and knows little else about them. The same student may know something more or less vague about bacteria, but rarely does the usual text make him clearly acquainted with the fact that in this group of protozoans are to be found the active germs of malaria, yellow fever, the Texas fever of cattle and the like, with the interesting account of their life cycles. Similarly, under the worms, though there is no sacrificing of the important facts of morphology, the keenest kind of interest is aroused by taking the liver fluke of the sheep as an example of the economic importance of the flat-worm group. Somewhat over four full pages devoted to this one topic does more to fasten the important facts in mind than could be done in any other way.

These typical examples give an idea of the method of treatment followed throughout the book; a method of treatment which must inevitably prove an effective stimulus to the student beginning the study of zoology. Here the study of zoology is made not merely a mass of scientific facts of varying interest, but is as it should be, a study of the animal kingdom made fascinating by the many vital relations existing between the various forms of life.

Both for the student and for the average individual who desires to know something about the general principles of the subject, the book unquestionably serves a valuable purpose.

WALTER S. TOWER.

University of Pennsylvania.

ROSS, E. A. *Social Psychology*. Pp. xvi, 372. Price, \$1.50. New York: Macmillan Company, 1908.

Professor Ross is always interesting and forceful. His latest book, though written far too largely with scissors and a paste pot, is no exception to the rule. A first attempt to formulate laws of social psychology is necessarily a difficult task, as the author suggests. If some of his generalizations are fairly obvious, and some others are open to serious question, nothing could be more admirable than the spirit in which they are propounded, and the frankness with which criticism is invited.

The theory of suggestibility, the mind of the crowd and that of the mob, the influence of custom and conventionality, with the laws that govern their spread and force, the role of conflict and discussion and the formation of public opinion, all come in for consideration. Incidentally there are many

keen criticisms of American institutions and habits of thought. Most interesting and suggestive is the analysis of the psychological conditions of social progress. As is to be expected the emphasis is laid rather on the radical than on the conservative tendencies in thought. The wholesome faith in democracy that runs through the work is a refreshing contrast to much current writing. At every turn the book shows the influence of Trade, but it is far from being a mere rehash of his ideas.

It taxes the reader's patience to ask him to wade through nine pages of quotations in an eighteen page chapter, or eight and a half quoted pages out of thirteen, as in a second chapter picked at random. Most of Professor Ross' quotations are from sources readily accessible, and we cannot help thinking that his book would have gained rather than lost by being limited to a third of its present compass, and thus presenting a terse discussion of its author's ideas couched in his own vigorous English, instead of being, as at present, a series of apparently more or less disjointed propositions, strung together with running commentary, and interlarded with endless quotations. But the fault of presentation will not blind the thoughtful reader to the real interest and value of the work, which is full of thought-provoking ideas. It ought to have a wide general circulation, and it will also prove useful in college classes.

HENRY R. MUSSEY.

University of Pennsylvania.

Royce, Josiah. *Race Questions and other American Problems.* Pp. 287. Price, \$1.25. New York: Macmillan Company, 1908.

The five chapters of this book are really a compilation of some public addresses of the author and are therefore somewhat popular in their form of presentation. The discussion of the race question is not only frank and unprejudiced, but sets forth plainly the present limitations of our racial psychology and the consequent folly of the frequent snap-shot conclusions concerning this question drawn by inferior and dogmatic writers. The relative inferiority of certain races has not been measured and is an unknown quantity; consequently our judgments must not be too hasty. In Jamaica the race problem has been largely solved by means of administration.

The second address urges the value and importance of "provincialism," the term being used in a broad sense, including the tendency of a unified locality to possess its own customs and ideals and to cherish its traditions and aspirations; the term also includes the aggregate of these customs and ideals. The author shows what evils may thus be corrected and in what way good will be conserved and generalized. In his discussion of the "Limitations of the Thoughtful Public" the nature of American idealism is analyzed. This is followed by constructive criticism aiming to make our idealism more intelligent and effective.

The chapter dealing with the relations of climate to civilization graphically relates the psychological effects of the physical aspects of nature as illustrated in the mental attitude of the Californian. The last lecture which

traces the relations between physical training, and the problems of moral education contains a lucid statement of the author's philosophy of loyalty and its necessary implications. The principles "be loyal" and "be loyal to loyalty" are regarded as fundamental to the rational solution of moral problems. The lectures although differing widely from each other in subject matter are to be regarded largely as special applications of the philosophy of the author.

GEO. B. MANGOLD.

St. Louis, Mo.

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ABBREVIATIONS—In the Index the following abbreviations have been used: *pap.*, principal paper by the person named; *b.*, review of book of which the person named is the author; *r.*, reviewed by the person named.

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